United States Court of Appeals
for the
District of Columbia Circuit

TRANSCRIPT OF RECORD

APPENDIX TO BRIEF FOR APPELLANT

IN THE

United States Court of Appeals

FOR THE DISTRICT OF COLUMBIA.

UNITED STATE
COURT OF APPEALS
DISTRICT OF COLU

FILED JAN 25 194

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No. 8389

ORVILLE V. McGREW, *Appellant*,

v.

CONWAY P. COE, COMMISSIONER OF PATENTS,
Appellee.

Appeal from the District Court of the United States for the District of Columbia.

PRESS OF BYRON S. ADAMS, WASHINGTON, D. C.

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FOR THE DISTRICT OF COLUMBIA.

No. 8389.

ORVILLE V. McGREW, *Appellant*,

v.

CONWAY P. COE, COMMISSIONER OF PATENTS,
Appellee.

Appeal from the District Court of the United States for the District of Columbia.

APPENDIX TO BRIEF FOR APPELLANT.

I.

PLEADINGS, DOCKET ENTRIES AND OTHER PAPERS DESIGNATED BY APPELLANT.

1 Endorsed: Filed Jan 11 1941 Charles E. Stewart, Clerk

In the United States District Court

For the District of Columbia

Civil Action No. 9699.

Orville V. McGrew, 4950 Chicago Beach Drive, Chicago, Illinois, *Plaintiff*,

vs.

Conway P. Coe, Commissioner of Patents, *Defendant*.

Complaint to Authorize Issue of Patent.

Under Section 4915, Revised Statutes of The United States, plaintiff states as follows:

I. The plaintiff, Orville V. McGrew, is a citizen of The United States and a resident of Chicago, County of Cook, and State of Illinois, and brings this suit in his own right.

II. The defendant, Conway P. Coe, is the Commissioner of Patents of The United States, a legal resident of the District of Columbia, and is sued as Commissioner of Patents of The United States.

III. This complaint is filed in accordance with the provisions of Section 4915 of the Revised Statutes of The United States.

IV. The plaintiff, Orville V. McGrew, filed an application for a patent in The United States Patent Office on March 27, 1939 entitled "Insulating and Sound Deadening Composition" which was given Serial No. 264,492. A
2 copy of said application and of the file of the Patent
Office relating thereto are hereby profert. Said application was a continuation-in-part of an earlier application filed by plaintiff on May 24, 1937, which was given Serial No. 144,558, profert of which is hereby made; which was in turn a division of an application filed by plaintiff on December 10, 1936, which was given Serial No. 115,254, profert of which is also hereby made.

V. Each of these applications

Serial No. 264,492—filed March 27, 1939
Serial No. 144,558—filed May 24, 1937
Serial No. 115,254—filed December 10, 1936

was filed in accordance with the laws of The United States and the rules of the Patent Office.

VI. Said application Serial No. 115,254, filed December 10, 1936, was duly prosecuted in accordance with the laws of The United States and the rules of the Patent Office until after the filing of said application Serial No. 144,558, filed May 24, 1937. Thereafter, as to the subject matter herein issued, said application Serial No. 115,254 was superseded by application Serial No. 144,558. Said application Serial No. 144,558 was duly prosecuted in accordance with the laws of The United States and the rules of the Patent Office until after the filing of said application Serial No. 264,492, on March 27, 1939. Thereafter, as to the subject matter herein issued, said application Serial No. 144,558 was superseded by the present application.

VII. Said application Serial No. 264,492 has been passed upon by the Primary Examiner who refused to allow any claim therein and specifically refused to allow the
3 following claims which he twice and finally rejected:

1. The herein described composition comprising compressible cork granules and a cut back asphalt binder of a semifluid type applied in quantity to coat the granules and substantially fill the voids so that the composition may be withdrawn by suction at normal atmospheric temperatures.

2. The herein described composition comprising cork granules supplying the substantial bulk of the composition and a cut back asphalt binder, coating the granules and filling the voids to an extent that suction can be applied at normal atmospheric temperatures to the mass of the composition without substantial passage of air through voids in the composition.

3. The herein described composition consisting of compressible cork granules supplying the substantial bulk of

the composition in a cut back asphalt binder including fine inert filler material, the binder being applied in quantity to coat the granules and fill the voids therein to an extent that when suction is applied to a mass of the composition air will not pass through the voids, the composition being sufficiently thin to flow to a pump under suction and the asphalt binder being of such consistency that the composition will adhere to vertical or overhanging surfaces when sprayed in layers up to an inch thick.

4. The herein described composition the main bulk of which is supplied of cork granules, the granules being held together by a cut back asphalt binder containing substantial proportions of Gilsonite, the binder being supplied in quantities sufficient to coat the granules and fill the pores to an extent permitting movement of the composition by suction, the binder being of a consistency to render the composition self-adherent when sprayed on vertical or overhanging surfaces in layers up to an inch thick.

5. An insulating composition of the characters set forth the bulk of which is provided mainly by granulated cork of approximately 10-20 mesh, the cork being held together by a cut back asphalt binder supplied in quantity to coat the cork particles and sufficiently fill the voids to permit the composition to be drawn to a pump by suction, the binder being of a consistency to permit the composition to be transmitted to the point of application under pump pressure through a tube and to cause the composition to adhere when sprayed upon a surface in layers up to an inch thick.

4 6. The herein described insulation the bulk of which is provided by granulated cork of approximately 10-20 mesh and a cut back asphalt binder the asphaltic fraction of which contains about three parts blown Mid Continent asphalt and one to two parts of Gilsonite, with a melting point of approximately 200.

7. The composition of claim 6, in which the asphalt contains inert pulverized filler.

8. The composition of claim 6, in which the asphalt contains inert filler of pulverized cork and asbestos fibre.

9. The herein described composition composed of the following ingredients in the proportions shown, to-wit: 204 lbs. 10-30 mesh cork, 50 lbs. pulverized cork, 330 lbs. asbestos fibre, the foregoing mixed with a cut back asphalt binder of which the asphaltic ingredient is about 1 part Gilsonite to 3 parts air blown Mid Continent asphalt, the asphalt having a melting point of approximately 200, the cut back asphalt including its solvent being provided in quantity to coat the cork granules and sufficiently fill the voids that the mass may be drawn to a pump by suction and the asphalt being thinned to a consistency so thin that the composition can be forced to a point of use through a tube and when sprayed on the surface will adhere in relatively thick layers.

10. A coating composition comprising approximately 230 gallons of a glue base comprising essentially blown oil, Gilsonite and naphtha, the mixture of Gilsonite and asphalt having a melting point of approximately 200° F. and a penetration of approximately 14, and the naphtha being added in proportion to produce a viscosity of between 60 and 100; 100 gallons of naphtha; 204 lbs. of 10 to 20 mesh cork; 50 lbs. of pulverized cork; 330 lbs. asbestos fibre and 85 gallons of water.

11. A coating composition for sound deadening and insulating purposes adaptable to be sprayed at atmospheric temperatures comprising compressible cork granules and a cut back asphalt binder of a semi-fluid type applied in quantity to coat the granules and substantially fill the voids so that the composition may be withdrawn by suction.

12. The herein described composition comprising compressible cork granules predominantly 10 to 20 mesh in size and a cut back asphalt binder of a semi-fluid type applied in quantity to coat the granules and in proportion to produce an insulating composition upon drying having a "K" factor of not over 0.42.

13. The herein described composition comprising approximately 7.7 parts of cork particles having approximately 10 to 20 mesh size weighing approximately 3.75

lbs. per cubic foot; 1.6 parts of cork dust; 10.5 parts of asbestos fibre; 16.6 parts of intermediate melting point asphalt and 11.1 parts of Gilsonite; and having a "K" factor of approximately 0.39.

VIII. The applicant duly appealed from the decision of the Primary Examiner to the Board of Appeals in the Patent Office, which affirmed the rejection of the Primary Examiner in a decision dated December 23, 1940. No appeal to the United States Court of Customs and Patent Appeals has been filed.

IX. Plaintiff further states that the invention defined by said claims and each of them was new and useful and was not known or used by others in this country before his invention thereof and was not patented or described in any printed publication in this or any foreign country before his invention thereof or more than two years prior to his application for patent therefor, and not in public use or on sale in this country for more than two years prior to his application for patent therefor, and not patented in any foreign country by him or his legal representatives on an application filed more than twelve months prior to his application for United States Letters Patent therefor, and not abandoned.

Wherefore, plaintiff prays that the Honorable Court decree that the Commissioner of Patents be directed to allow said claims and to issue a patent thereon.

ORVILLE V. McGREW, *Plaintiff*
By CHRITTON, WILES, DAVIES,
HIRSCHL & DAWSON,
Solicitors for Plaintiff
2800 Board of Trade Building
Chicago, Illinois

NELSON J. JEWETT
Of Counsel
850 Munsey Building
Washington, D. C.

• • • • • • • • • •

6 Filed Feb 14 1941 Charles E. Stewart, Clerk

Answer to the Complaint.

To the Honorable the Justices of the District Court of the United States for the District of Columbia.

I. Defendant admits the allegations of paragraph I.

II. He admits the allegation of his official position. He admits that his official residence is in the District of Columbia but states that his legal residence is in the State of Maryland. He admits that he is sued in his official capacity.

III, IV, V. He admits the allegations of paragraphs III, IV and V.

VI. He admits the allegations of paragraph VI in so far as the subject matter of claims 1, 2, 3, 4, 5, 7, 8, 9, 10 and 11 of plaintiff's application No. 264,492 is concerned, but denies that the subject matter of claims 6, 12 and 13 of plaintiff's application No. 264,492 is disclosed in either of plaintiff's applications numbers 115,254 and 144,558.

7 VII, VIII. He admits the allegations of paragraphs VII and VIII.

IX. He admits that plaintiff, in his application No. 264,492 made averments corresponding to the allegations of paragraph IX. He denies that said allegations are sufficient to justify the issuance of a patent containing any of claims 1 to 13, inclusive, of said application as it is deemed that said claims are unpatentable in view of the following prior patents and for the reasons given in the statement of the examiner in answer to the appeal and the decision of the Board of Appeals, copies of which will be furnished at the trial:

Luyties,	1,643,021,	Sept. 20, 1927,
Dunford,	1,914,912,	June 20, 1933.

Profert of copies of these patents is hereby made.

W. W. COCHRAN,

Solicitor, U. S. Patent Office,
Attorney for Defendant.

February 13, 1941.

I hereby certify that a copy of this Answer to the Complaint was mailed today to the attorney for plaintiff.

W. W. COCHRAN,
Solicitor.

* * * * * * * * * *

203 Endorsed: U. S. Patent Office Board of Appeals Mailed Dec 23 1940

Before the Board of Appeals

Ex parte ORVILLE V. McGREW

Application for Patent filed March 27, 1939, Serial No. 264,492. Insulating and Sound Deadening Composition.

Messrs. Chritton, Wiles, Hirschl & Dawson for applicant.

This is an appeal from the final rejection of all the claims of the application, namely, 1 to 13.

Claims 1, 5 and 10 are illustrative.

1. The herein described composition comprising compressible cork granules and a cut back asphalt binder of a semi-fluid type applied in quantity to coat the granules and substantially fill the voids so that the composition may be withdrawn by suction at normal atmospheric temperatures.

5. An insulating composition of the character set forth the bulk of which is provided mainly by granulated cork of approximately 10-20 mesh, the cork being held together by a cut back asphalt binder supplied in quantity to coat the cork particles and sufficiently fill the voids to permit the

composition to the drawn to a pump by suction, the binder being of a consistency to permit the composition to be transmitted to the point of application under pump pressure through a tube and to cause the composition to adhere when sprayed upon a surface in layers up to an inch thick.

10. A coating composition comprising approximately 230 gallons of a glue base comprising essentially blown oil, Gilsonite and naphtha, the mixture of Gilsonite and as-
204 phalt having a melting point of approximately 200° F. and a penetration of approximately 14, and the naphtha being added in proportion to produce a viscosity of between 60 and 100; 100 gallons of naphtha; 204 lbs. of 10 to 20 mesh cork; 50 lbs. of pulverized cork; 330 lbs. asbestos fibre and 85 gallons of water.

The references relied upon by the examiner are as follows:

Luyties	1,643,021	Sep. 20, 1927
Dunford	1,914,912	Jun. 20, 1933

The claims on appeal relate to a composition adapted to be spread upon surfaces to serve as an insulating and sound deadening material, the details of which are believed sufficiently clear from the quoted claims.

The patent to Luyties discloses a composition of asphalt and solvent in the way of a binder which ground cork and asbestos fiber as an optional agent. Luyties may add other ingredients but certain of the claims on appeal are not exclusive of other materials and likewise the other materials mentioned by Luyties are only optional ingredients as a matter of choice.

Dunford discloses the same type of composition employing wood flour which may be regarded as equivalent to cork, that is, within the limits of obvious differences of being slightly heavier and more fibrous than cork in respect to individual particles.

We regard the broader claims on appeal as being directly anticipated by Luyties and the more specific claims even

in respect to specific proportions, such as claim 10, as not presenting patentable novelty over the references. We find no outstanding differences in quality other than should be expected from mere change of proportions and choice as to degree of fluidity by regulation of the amount of
205 solvent in the mixture over the composition of the
citations.

We have given careful consideration to the discussion in the brief and showing of the affidavits of record without finding reason for reaching conclusions different from those stated by the examiner.

The decision of the examiner is affirmed.

BOARD OF APPEALS

W. L. REDROW
Examiner-in-Chief

W. L. THURBER
Examiner-in-Chief

E. T. MORGAN
Examiner-in-Chief

December 23, 1940

MESSRS. CHRITTON, WILES, DAVIES,
HIRSCHL & DAWSON,

850 Munsey Bldg.,
Washington, D. C.

* * * * * * * * * *

79 Endorsed: Filed Sep 4—1942 Charles E. Stewart, Clerk

Findings of Fact and Conclusions of Law Proposed By Plaintiff.

1. The invention relates to an asphalt-cork composition which has both the ability to be sprayed at atmospheric temperatures, and which will adhere to vertical or overhanging walls in thick layers when so sprayed.

2. The invention has found great commercial success without advertising. It has been employed largely in lining the interior of the roofs of freight cars, where great toughness, adherence, and insulating value is required.

3. For years the railroad industry and the building trades searched without success for a material having the properties of McGrew's composition. There was a real need for the composition, which need has been met successfully by applicant's material. There is at the present time no other successful competing material.

80 4. The McGrew product has been applied to more than 50,000 railroad cars over a period of seven years.

5. The references do not show compositions capable both of being sprayed cold and being applied in thick layers.

6. The Luyties patent describes a pipe liner designed to be applied melted. The McGrew composition could not be applied as Luyties describes, and the Luyties product could not be applied as McGrew describes. There are no proportions given in Luyties. The McGrew material does not become fluid on heating, and would be unsatisfactory if it did.

7. The Luyties patent does not teach one how to make a product which can be sprayed cold, nor one which will adhere in thick layers when so sprayed.

8. The Dunford patent teaches the manufacture of a complex asphaltic material, which includes wood flour. The Dunford product, if prepared to be sprayable, will not adhere in thick layers to vertical walls. If thickened so that it will adhere, it is not sprayable. Dunford describes his patented material as capable of being brushed, or sprayed in the ordinary manner. McGrew's material cannot be brushed or sprayed in the ordinary manner.

9. Wood flour and cork are not equivalent in this composition.

81 10. Dunford himself took a license for applying material to cars from McGrew. This license is under

a patent for spraying the present composition by suction. Obviously, Dunford was unable to spray any suitable composition, including his own, by ordinary pressure spray. The material Dunford did apply was unsatisfactory even then.

11. Dunford does not teach one skilled in the art how to make McGrew's material.

Conclusions of Law

1. The McGrew application, in claims 1, 2, 3, 4, 5, 9, 10, 12 and 13, sets forth a development which successfully satisfied a long felt want in the industry, and a patent should be issued thereon.

Counsel for Orville V. McGrew, plaintiff herein, requests the Court to adopt the above as its Finding of Fact and Conclusions of Law in this cause. A copy thereof has been furnished to Counsel for Defendant.

NELSON J. JEWETT,
Of Counsel for Plaintiff

The request that the above Findings of Fact and Conclusions of Law be adopted is......................this ......day of August, 1942.

....
Justice

* * * * * * * * * *

82 Endorsed: Filed Sep 4—1942 Charles E. Stewart, Clerk

Findings of Fact.

1. This is an action under Section 4915 R. S. (U. S. C., title 35, sec. 63) in which plaintiff seeks a judgment which would authorize the defendant, the Commissioner of Patents, to issue a patent on plaintiff's application, No. 264,492, which was filed in the Patent Office on March 27, 1939.

2. The application relates to an insulating and sound-deadening composition consisting of cork granules, finely

divided [sic] cork, asphalt, gilsonite, asbestos, and a solvent such as naphtha. The composition is made of such consistency that it may be sprayed on surfaces to form a thick coating thereon. In the application it is stated that the asphalt, gilsonite and the solvent form a binder which coats the cork granules and fills the pores sufficiently to permit the composition to be pumped by suction.

3. The patent to Luyties, No. 1,643,021, September 20, 1927, which was placed in evidence by defendant, discloses a composition adapted for use as a compressible lining for pipes to prevent them from bursting upon freezing. The composition consists of cork of a fineness correspond-
ing to that of ordinary granulated sugar, asphalt, gil-
83 sonite, asbestos and a petroleum solvent to render the
composition fluid to the desired degree. The materials are thoroughly mixed to such an extent that each particle of cork and asbestos is coated with the binder consisting of asphalt, gilsonite and solvent. The composition is applied to the pipe by pouring or dipping operations.

4. The patent to Dunford, No. 1,914,912, June 20, 1933, which was placed in evidence by defendant, discloses a sound-deadening composition adapted to be sprayed on automobile bodies, metal partitions, or any sheet metal surface. The composition consists principally of asphalt, gilsonite, wood flour, clay asbestos, cottonseed pitch and naphtha. The composition has a viscosity approximating that of heavy machine oil and may readily be sprayed.

5. Claims 1 to 13, inclusive, of plaintiff's application were included in the complaint, but claims 6, 7, 8 and 11 were later withdrawn.

6. The Luyties and Dunford patents disclose compositions consisting substantially of the same ingredients as the compositions recited in claims 1 to 5, inclusive, and 12 of plaintiff's application, and these claims recite nothing amounting to an invention over these patents.

7. Claims 2, 3, 4, 5 and 12 define the characteristics of the composition, largely in terms of function or result.

These claims do not meet the requirement of Section 4887 R. S., that an applicant for patent shall particularly point out and distinctly claim the part, improvement or
84 combination which he claims as his invention. Those claims are therefore not patentable.

8. Claims 9, 10 and 13 recite the proportions of the ingredients employed in making the composition. The proportions recited in claims 9 and 10 are different from those recited in claim 13. None of the proportions recited is critical for the compositions produced differ only in degree and not in kind from the compositions disclosed in the Luyties and Dunford patents. None of these claims is patentable over the said patents. Claim 9 is additionally unpatentable for the same reason as claim 2.

Conclusions of Law.

1. Plaintiff is not entitled to the issuance of a patent on any of the claims set out in the complaint.

2. The complaint should be dismissed as to all of the claims set out therein.

F DICKINSON LETTS
Justice.

* * * * * * * * * *

85 Endorsed: Filed Sep 4—1942 Charles E. Stewart, Clerk

Judgment.

This cause having come on to be heard and having been tried in open court and argued by counsel for the respective parties upon the pleadings and proofs adduced and submitted to the Court,

It is Adjudged this 4th day of September, 1942, that the complaint in this case be, and the same hereby is dismissed with costs against the plaintiff.

F DICKINSON LETTS
Justice.

Approved as to form:

NELSON J. JEWETT,
Attorney for Plaintiff.

II.

EXCERPTS FROM TESTIMONY AND PROCEEDINGS DESIGNATED BY APPELLANT.

16 **Fred F. Cox**

was called as a witness for and on behalf of the plaintiff and, having been first duly sworn, was examined and testified as follows:

Mr. Merriam. Before Mr. Cox goes ahead I should like to introduce these three exhibits. The first one is the certified copy of the file wrapper and contents of patent 2,145,027, which is the one on the spraying apparatus, and it was a parent case of the present one.

(Certified copy of file wrapper and contents, McGrew patent No. 2,145,027, was marked Plaintiff's Exhibit 1 and received in evidence.)

Mr. Merriam. As 2, the certified copy of the file wrapper and contents of the abandoned application No. 144,558, which is also a chain in our prosecution.

(Certified copy of file wrapper and contents, abandoned application of McGrew, No. 144,558, was marked Plaintiff's Exhibit 2 and received in evidence.)

Mr. Merriam. And as 3, a typewritten copy of the file history of application 264,492, which is the one in issue. I have not been able yet to procure a certified copy from the Patent Office, and I understand it is agreeable to Mr. Cochran that we offer this temporarily and substitute the other one when it is ready.

(Copy of file history of application 264,492, of McGrew, was marked Plaintiff's Exhibit 3 and received in evidence.)

17

Direct Examination

By Mr. Merriam:

Q. Will you state your full name, Mr. Cox? A. Fred F. Cox.

Q. What is your residence? A. 3917 Linden Avenue, Western Springs, Illinois.

Q. What is your present position? A. I am technical director for the McGrew Asphalt Company and the Dednox Company in Chicago.

Q. And how long have you occupied those positions? A. A little over five years.

Q. Have you been in the asphalt business for a longer time than that? A. About 12 years.

Q. Are you familiar with the McGrew applications, 264,492 and the others which I have introduced? A. Yes, I am.

Q. And you have prepared the compositions that are set forth therein? A. Yes.

Q. Now I think we might start off by having you explain to the Court how those compositions are made up. You have the materials here, have you not? A. All right.

The Witness. Could I step down here, your Honor? It would be better if I did.

The Court. Yes.

Mr. Merriam. How would it be if I brought this
18 other little table over here and let him put these
materials on that?

The Court. That would be satisfactory.

Mr. Merriam. Now, as you go will you explain what is in each container and the significance of the container on what you are doing?

Can you see, your Honor, there? Is that too close up?

The Court. I think it would be better if you had it back here a little.

Mr. Merriam. Maybe I had better do that. I did not realize it was getting up underneath the desk there.

Th Witness. Mr. Merriam, would you want to show those for the base (indicating material samples)?

Mr. Merriam. Yes.

The Witness. We use an asphalt that is unusual to a certain degree, in that it is made up of a very soft flux to start with, asphalt flux. That is blown about—

By Mr. Merriam:

Q. (Interposing). Now just a minute. You have here a sample of asphalt flux, have you? A. Yes, that is asphalt flux (indicating).

Mr. Merriam. Let us mark that Plaintiff's Exhibit 3-A.

(Sample of asphalt flux was marked Plaintiff's Exhibit No. 3-A for identification.)

The Witness. That asphalt flux is composed of about three blends of Midcontinent asphalt. That in turn is blown to about 180 melting point, and then we incorporate gilsonite that is mined in Utah.

Mr. Merriam. Now just a minute. Just mark that
19 3-B.

(Sample of gilsonite was marked Plaintiff's Exhibit No. 3-B for identification.)

By Mr. Merriam:

Q. Your Exhibit 3-B is what? A. That is gilsonite, selected, which would have been gilsonite which is mined in Utah and has a melting point of about 275 degres Fahrenheit and a penetration of zero, very hard.

Mr. Merriam. Can you see this? This is the asphalt flux, and there is the gilsonite (exhibiting samples to the Court). Will you mark these 3-C and 3-D?

(Sample of asphalt MP-180 was marked Plaintiff's Exhibit No. 3-C for identification.)

(Sample of asphalt and gilsonite was marked Plaintiff's Exhibit No. 3-D for identification.)

By Mr. Merriam:

Q. Now, this one, which is 3-C, which I am just handing you, is, as I understand it, the product of the flux oil after it has been blown to about 180 degrees melting point? A. That is correct, before the gilsonite has been added.

Mr. Merriam. This is the second stage (exhibiting sample to the Court).

The Witness. Now, after the gilsonite is added it raises the melting point considerably, and then we add a little more of the original flux to bring it back to 190 to 200 melt, and this is the finished asphaltic product with the gilsonite melted in (indicating).

Mr. Merriam. And that is marked 3-D.

The Witness. Now, while that product is warmed to about 300 degrees Fahrenheit it is mixed with a petroleum solvent to make what we call a heavy asphalt cutback, which is this mixture here (indicating), which is liquid at room temperature, of about the consistency of a heavy molasses. Now, that is our base, our asphalt cutback base we start with in making our product called Dednox. Into that we add more petroleum solvent in the mixing process. This is done in a large paddle mixer, makes about 1,500 gallons (demonstrating). After stirring this asphalt cutback and petroleum solvent to make a thin asphalt cutback mixture—now this is necessary so that we may incorporate a large percentage of cork that we add (demonstrating). You can see that is very light now compared to what it was.

Mr. Merriam. You can see this, your Honor. It is a very light material (exhibiting to the Court).

The Witness. Now we are adding pure cork of about a 10-20 mesh. This cork is not treated in any way. (Demonstrating.)

By Mr. Merriam:

Q. You might call attention, Mr. Cox, to the rings which you have drawn on the containers and explain the significance of that. A. Well, these rings were measured out previously, to the exact percentages, is what we used in our production batches, so that we would not have to weigh them here, the solvent.

Q. The point I was making was: With the rings, after its raising, after you get through, you will notice that the

volume of the completed product is not much greater than the volume of the cork which we put into it. A. Oh, I
21 see.

Q. As borne out by the rings there. A. Yes. Now, we use a little cork dust, very small percentage, which is of about the consistency of flour. We find a small percentage of that is necessary, which takes out some of the oiliness and prevents sliding or slipping in spraying application (demonstrating).

Now, this is quite mealy now, in this present form. It could not be handled properly. It would slide. It does not handle. Notice how mealy that it. This won't bind at all. In that condition it could not be sprayed properly, and if it was sprayed it wouldn't adhere to metal in a thick coating.

We add a percentage of chromic solution, chromic acid crystals dissolved in water.

Mr. Merriam. Mr. Cochran, if there is any time when you want to interrupt and ask him any question about this, it is perfectly all right with me.

The Witness. Now, this chromic solution gives the product a tack and a gumminess, enables spraying to be much easier, and acts also somewhat as a lubricant in the hose. You will notice how much gummier that is, although it would not work properly even now, but it is much gummier; it hangs together.

Then we add a percentage of asbestos fiber, very small percentage.

By the Court:

Q. What is that? A. Asbestos fiber.

By Mr. Merriam:

Q. How fine is that ground, Mr. Cox? Do you know? A. Well, this is called about an eighth mesh.
22 Q. Did you say 80 mesh? A. Eighth.

Q. Eighth? A. One-eighth. Now, this is the finished material. However, it is made a little light. After about a week, four days to a week, it takes on a body. Then it will change. We have a sample there, Mr. Merriam. It is about a week old.

Q. This is the one on which I put "Plaintiff's Exhibit 16." A. Yes. Now, after about a week it takes on a body, reaches about this consistency (indicating). Now, in spraying, some of the volatile leaves in the air, so it is somewhat heavier when it strikes the metal. This is our fresh sample (indicating).

Mr. Merriam. We would have liked to have brought in a spray apparatus, your Honor, but it is impracticable to bring it in. We just have to put it on.

The Court. I think this will be understood just as well.

(The witness demonstrated further.)

Mr. Merriam. You see the difference, your Honor, even there, between, what little difference a spray will make, because with that sprayed on it wouldn't even slide in this condition, and in the course of a week then it binds it to the point where it won't slide even when it is troweled on.

(The witness resumed the stand.)

By Mr. Merriam:

Q. Mr. Cox, will you state whether or not it is possible to brush the material that you have there, that you prepared? A. No, that material couldn't be brushed.
23 It is too mealy and heavy to be brushed.

Q. Will you explain how the material is applied? And I show you a book of photographs marked Plaintiff's Exhibit 4, of which your Honor has a copy. You might explain, going through there, what those represent.

(Book of photographs was marked Plaintiff's Exhibit No. 4 for identification.)

A. Photograph No. 1 is a small spraying machine which is used for work where the speed of spraying is not so important and a small portable machine is necessary.

Q. Will you explain the construction, in general, of that spray apparatus? A. Yes. I think I would like to take one of these other pictures that is a little plainer, though.

Q. All right. A. 2 is a picture—these machines are basically all the same—is a machine for a little larger job. 3 is used in railroad shops and where there is similar production work, and picture 4, which is a little clearer, is the machines that we use on large production jobs such as in railroad shops where we have a car to spray every 20 minutes or less. Now, this large hopper on top is filled with our material. That holds about 300 gallons. Right below the hopper is a rotary pump that is capable of pulling a vacuum of about 28 inches. This pump is driven by an air motor. Our material being so heavy, it does not flow readily, and with a large area we have in the hopper, and the vacuum pulling, the natural air pressure forces the material into the pump. The pump is capable of building up pressures to about 500 pounds per square inch.

24 This next picture shows the hose.

Q. That is No. 5? A. No. 5. The material is pumped into the hose, and these are special spray guns that we have designed enabling an operator to walk along the car sill of an unfinished box car and spray the roof. The pressures exerted are so high in this spraying machine that we have incorporated a safety device. That is this pipe shown running up the side, so that it will not rupture the hose and blow back into the hopper in case of plugging, that is, in case of the hose plugging or any foreign matter getting in the material.

With this particular machine, the large one, as much as 75 gallons of material have been applied to a box car roof in 7 to 8 minutes by two men spraying. One starts on each end of the car and works to the door.

Q. How thick a coating does that amount to? A. That amounts to approximately a quarter of an inch, in a 40-foot box car, 40 feet by 10 feet 6.

Q. At this point you might explain why it is that you use suction rather than pressure in one of these spraying apparatuses. A. Well, the material is so heavy and mealy that if a pressure tank was attempted, if we tried to use a pressure tank, the air pressure would channel right through the material, and we would get material through undoubtedly; we have tried it, and we have found we get that, but in comes in gobs. It isn't an even flow. The channel opens up, and then it sumps in and fills, and then it blows through again, and it has never worked successfully with a pressure tank, a material this heavy.

25 Q. Now will you go ahead and explain these other pictures? I think we are up to 6 now. A. Yes. Well, in these previous pictures basically the units were all the same except for size and for different applications, and in 6 we are showing our small unit with the hose connected, and we have incorporated a device so that the operator has complete control of the machine. When he opens the spray gun the air motor starts automatically, and the material starts to pump.

Picture 7 shows the stream of material coming from the spray gun, but we do not have the air on there to atomize it. We wanted to show how the material pumps, in that particular picture.

Picture 8 is a closeup of the stream, and we are able to pump the material as fast as conditions demand, by just varying the speed of the pump.

Q. I just want to make clear that in picture 8 the stream that is coming out of there is not the characteristic stream which you get. A. No; that is without the atomizing air.

Now, in picture 9 we are just starting to spray a ⅜-inch piece of plywood, to show the material can be built up.

The picture 10 shows the actual spraying. Now, looking closely at that nozzle you can see the Dednox emitting from the spray nozzle and that would about correspond to this thickness (indicating sample). These are the boards that were sprayed, and we cut them off after they dried.

Q. What is it you are holding there? What is the
26 number on the back of it? A. This is Exhibit 17.

The Court. Let me see that a minute.

The Witness. Yes, sir (handing to the Court).

Then in picture 11 we have the same board with a little thicker coating.

12, we sprayed it. That is about three-eighths of an inch thick, I believe.

By Mr. Merriam:

Q. Is not 12 a little thicker than that? A. Well, it might be half. I am just going by the picture here; three-eighths, half maybe.

Q. Yes. A. 13 is about five-eighths of an inch thick. That would correspond to about this board (indicating). We didn't bring all these boards with us.

Q. What is the mark on the back of it? A. That is Exhibit 18. And that is about a half inch, roughly, thick.

By the Court:

Q. How do you manage to keep the thickness even? Is that a matter of experience in putting it on? A. You mean in actual production?

Q. Yes. A. Well, it is mainly a matter of experience. When we are breaking new men in we have a depth gauge, and we stop and gauge it, but a man learns just about how fast to move the spray gun. They are very even, the cars, as a rule.

By Mr. Merriam:

Q. Well, at that point, Mr. Cox, in applying this
27 material in practice in a car, do you apply it in one
layer or more than one layer? A. A man starts at each end of the box car, and when they get to the door they step out; the job is finished. It is just one layer.

Q. An application of a quarter of an inch all at once? A. A quarter of an inch at one spray.

Picture No. 14 shows material about three-quarters of an inch thick, and 15 is sprayed to about—that is approximately an inch thick. The thickest one we have brought with us is about three-quarters of an inch thick. This is Exibit No. 19, about three-quarters of an inch thick (indicating).

Picture No. 16, we are just holding a ruler up there to give an idea of the thickness, that being a ⅜-inch plywood board.

Picture No. 17 is a view looking at the board from an angle instead of at right angles.

Picture No. 18 is a Rock Island car sprayed in the Burr Oak shops near Chicago, Illinois, in April 1940.

Now, those are pictures of the typical cars that are sprayed, and the next picture, 19, is a closeup of the roof, standing in the car looking up, the way our material looks. That light finish in that particular picture is a light paint they put over it to give it a light appearance. It is a kind of tan paint.

Q. Is that the roof of the same car that is shown in picture 18? A. That is the roof of the same car that is shown in picture 18, yes, sir.

28 Picture 20 is the roof of a Santa Fe car that was sprayed in 1937. These were among the first cars that were sprayed in production.

And picture No. 21 is the same roof, merely a different view.

Q. When were those pictures taken? A. Those pictures were taken about two weeks ago.

Q. Had the car been in use since that time? Do you know? A. It had been in use since 1937, just about five years.

By the Court:

Q. Why did they lighten the car? A. Why? Only one railroad we know, that we buy material for, do lighten it. It is mostly for appearance. It enables them in packing to see a little better in the back end. That is the only advantage.

Mr. Merriam. Now, you have explained and shown some pictures. I should like to offer Exhibit 4.

Mr. Cochran. No objection.

(Book of photographs heretofore marked Plaintiff's Exhibit No. 4 was received in evidence.)

Mr. Merriam. And also the panels 17, 18, and 19, which we have identified.

Mr. Cochran. Yes.

(Panels numbered 17, 18, and 19 were received in evidence.)

By Mr. Merriam:

Q. You have explained that you apply the material to
cars. You might tell us a little more about what uses
29 it has on cars and then what other use the material
has. A. Well, the primary purpose of applying this
material to a box car roof is to stop condensation. Most of the cars that we apply our material to are cars that carry flour. Therefore the western roads use more of our material than the eastern roads, travelling through the flour country, Minneapolis, Kansas. It seems that in wintertime in loading flour from a mill, flour is about 80 to a hundred degrees temperature, and it has a fairly high moisture content, roughly around 20%, and when flour is loaded into a car and the doors are shut the moisture condenses on the ceiling and drops onto the flour in the lading.

Well, they tried various methods to eliminate the damage, such as covering the flour with sisal paper, different waterproof papers, and naturally the water will lie in that paper even though it does not go through, and when the cars are switched or bumped it splashes out, and they found a very high percentage of loss in wintertime in flour lading. However, it also eliminates condensation in other products, such as corn starch and anything that is loaded hot into a cold car in winter; it has moisture in it.

Q. I show you a photograph which— A. (Interposing) Could I add to that just one moment.

Now, the question often comes up, Why don't we do the whole inside of a car, sides as well as roof? and it is obvious that if the car is closed moisture has to condense some as the temperature drops, and therefore what we have done is control where the temperature condenses. It condenses on the sides of the car between the wood lining and the side sheet and runs down and is drained off and does no damage. On some of the cars that have been actually tested, where we have put buckets out to catch the water under actual test conditions, without our material with it, as much as a hundred gallons of water has condensed in a flour car under adverse conditions, when we have very high humidity, and that is usually around 28 degrees and not cold weather, of course. In really cold weather there is not as much humidity in the air, and with our material that is cut down to about five gallons of condensation on the roof.

Q. I show you a photograph which I have marked Plaintiff's Exhibit 6, and will you explain what that is?

(Photograph was marked Plaintiff's Exhibit No. 6 for identification.)

A. Well, this is the inside of a box car after it has been finished with a wood lining in, with Dednox applied to the roof sheets.

Q. Is that typical of the manner of application inside of a box car? A. Yes, 99 percent of them are finished in that manner.

Mr. Merriam. I offer that, Mr. Cochran.

Mr. Cochran. No objection.

(Photograph heretofore marked Plaintiff's Exhibit No. 6 was received in evidence.)

By Mr. Merriam:

Q. I show you a photograph which I have marked Plaintiff's Exhibit 7, and ask you to explain that. A. This is

rather a new treatment for us and hasn't been done in pro-
duction, although, we have done about 20 cars. It
31 seems that they have a great deal of trouble with
vermin getting into the ends of cars, corrugated cars.
Some of the large flour mills are looking for a way to seal that. They are vitally interested in our material because it will adhere to surfaces and is easily applied to curved surfaces by spraying.

But that is just another way it could be used. However, that isn't done greatly in production. Those cars, by the way, have been out about two years and look very well yet, still a test run.

Q. Was that picture taken after the car had been out or before it went out? A. That picture there was taken shortly after it was finished, about a week.

Q. Now I show you a page, which is page 9 from your booklet, and call attention to the top photograph only on the page, and ask you if you will explain the significance of that picture. A. Our material, Dednox, is used on passenger cars, sprayed on the inside sheets and also on the air ducts to prevent condensation and corrosion. That particular train was made at the Pullman shops, Pullman, Illinois, and our material is applied to all of their new car construction and rebuilts in those shops.

Mr. Merriam. I should like to offer the photograph only as Exhibit 7-A, not any of the descriptive matter or the rest of the page. I have not had that one marked yet.

(Photograph, from page 9 of booklet, was marked Plaintiff's Exhibit No. 7-A and received in evidence.)

32 By Mr. Merriam:

Q. I show you another photograph and ask you if you will explain that. A. Besides our railroad work we have done considerable work in insulating oil storage tanks or tanks that are used to hold any liquid or material that has to be heated. A quarter of an inch coating of Dednox will stop approximately 60 to 65 percent of the heat flow through metal, and therefore it is an economical application. Being sprayed on, being waterproofed, it needs no further treatment.

Q. Do you know how long the coating has been on the tanks that are shown? A. Well, those particular tanks, the coating has been on about five years.

Q. When the picture was taken? A. That picture was taken when it had been on four years. That was taken last year.

Mr. Merriam. I should like to have that marked and offered as Plaintiff's Exhibit 7-B.

(Photograph of storage tanks was marked Plaintiff's Exhibit 7-B and received in evidence.)

By Mr. Merriam:

Q. Now, Mr. Cochran, you have already said that these are put on in layers of a quarter of an inch, and you have shown some higher thicknesses. Will you explain the difficulties that you run into when you attempt to apply a coating of that thickness? A. Well, with a material that is applied that thick, either in an inverted or a vertical position,
it is obvious that it is quite difficult to make it adhere
33 in thick coatings without sliding or falling. In a
horizontal position it is obvious that it would be very easy to apply a thick coating. However, 90 percent of the work to be done calls for application to inverted or vertical surfaces. Then the material must be of such a consistency that it can spray and is heavy enough to adhere in thick coatings.

Well, now, it is very easy to make either one or the other. It is quite simple to make a material that will apply in thick coatings in an inverted or vertical position, but when that is done it is not sprayable. On the other hand, if it can be sprayed, usually it slides or falls.

One of our problems is also to keep the weight of the material down, as we found that vitally affects the performance of the material both in adhering to inverted surfaces and also in the insulation factor. We have found that if too much cork is used the product is mealy and will not adhere, due to the lack of asphalt. If too little cork is used the material is heavy, does not have the insulating value, and it invariably falls. If the cork is not of the right mesh we find, again, that if it is too large it is mealy, will not adhere, will not bind together; if it is too fine a texture it does not have the insulating value. So there are a good many variables in there, and it is quite important that we get the right balance; otherwise the material will fail.

Q. Will you explain what the significance, if any, of porosity is in your material? A. Well, a porous substance is always a good insulator, provided the pores do not fill
with moisture at a later date if moisture is present
34 in the air. Now, the porosity also enables material
to be lighter in weight, which is a distinct advantage
I mentioned in eliminating sliding and falling. Also, the porosity enables the material to dry through, which is very important. If the material is dense it tends to skin over and not dry through; and in railroad practice, in which all the spraying is done outside in the summer months, if the material is not porous a pressure is built up from the solvents evaporating, which are apt to cause the material to fall, blow off, cause blisters, somewhat similar, your Honor, to paint blisters, if the material is too dense.

Q. Will you also explain the reason why it is that you use the several kinds of asphalt which you described earlier? A. Yes. The asphalt composition we feel is very important. Asphaltic products without gilsonite are apt to liver in cold weather.

Q. What do you mean by "livering"? A. Livering means that it takes on a false body. We are at room temperature. Let us suppose we have a material that is water-thin, and we take that same material outside to, say, 32 degrees, and it would be like a gelatin. Well, it is obvious that in production jobs we cannot have a material that changes consistency that fast, because practically all our work is sprayed outside in the prevailing weather conditions. We have sprayed our material at temperatures as low as 15 degrees below zero and as high as 120 in the shade. So by using a blend of asphalts with gilsonite, such as we have incorporated, we have eliminated the livering that is common in ordinary asphalts of that high melting point. Now, it is possible to make asphaltic materials without gilsonite that will not liver, but they are limited to the lower melting points and the high-penetration asphalts, and these become very soft in summer under the heat of the summer sun and therefore do not work as well in hot weather. That is why we have made our blend as it is.

Q. Perhaps I can make it a little clearer by this question: If you take an asphalt made from a single oil and having a melting point of, say, 180 degrees, will that asphalt have the same properties as an asphalt which has been made up from a group of asphalts of higher and lower melting points and mixed to give the same ultimate melting point? A. No, it will not.

Q. Will you explain that? A. It will have what they call a lower susceptibility factor. That means that it will become very brittle and hard in cold weather, extremely in warm weather.

Q. Which one is that? A. That is the straight material without blending. By blending various types of asphalts and gilsonite we are able to make a material that does not change its characteristics greatly over wide temperature ranges.

Q. You have made up here a group of samples, and I shall move them over. I think perhaps if you will just explain them to the Court it will be simplest.

(The witness stepped down to a table containing samples.)

A. We have endeavored to make several samples similar to our product, Dednox, but varied the composition

36 such that it would not be practical in actual production jobs of spraying.

Our first sample, A, is Exhibit No. 8. This material has a very high asphaltic content. Now, you will notice it is very gummy, and it sticks very well to a spatula, but this gumminess means that it will be very difficult to spray, and if the temperature changed and it became cold overnight and they were working with this material, they would find it would be so stiff that they couldn't handle it the next morning. On the other hand, if they were finding it was working perfectly, and the temperature went up 20 degrees, they would find it would be so thin that it would run and slide. Now, although that material looked heavy, we troweled out a panel of it, and it all sloughed down. That is this panel here, A (indicating).

Now, it is possible to make a material of this nature that will work for a very close temperature range, but in production it is not practical.

Now, sample B, we have endeavored to correct the difficulties. And, by the way, pardon me; there is another disadvantage there, too, and that is the shrinkage due to the lack of cork and filler. There is a very high shrinkage upon drying.

By the Court:

Q. Was that filled? A. That was filled. They were all filled, all of these. All the cups were level when the material was fresh, before drying.

Mr. Merriam. We had better mark them. Was that 8?

The Witness. It is over here (indicating), Exhibit 8.

37 (A sample of material was marked Plaintiff's Exhibit No. 8 for identification.)

Mr. Merriam. Let us mark this 8-A.

(A sample of material was marked Plaintiff's Exhibit No. 8-A for identification.)

The Witness. To overcome that difficulty we made up a sample, sample B, Exhibit 9, where we have incorporated a very high percentage of cork. To allow us to get this much cork in the material it is necessary to thin it very far with petroleum solvents. This material, you will notice, is very mealy, and it does not cling to the spatula at all. However, it does not slump and run to the same extent that A did, even though it slid. It did not have enough asphalt to have a good adhesion, but there is not enough asphalt there to enable it to stay in place. That would also be just about impossible to spray due to its mealy characteristics. We do not believe it would even spray with our spraying machine where we are using suction. However, such a sample does not shrink much due to the high percentage of cork, which is an advantage if it could be handled.

Mr. Merriam. Now, that shrunken one is marked 9-A, and the slide B one was marked 30.

The Witness. Now, sample C, Exhibit 10. This was about the same composition, except we added even more cork and less solvent. Then we raised the asphalt content, but it has too much cork, too high a percentage of cork, and is very mealy, and it would not spray, although it does not shrink, hardly at all. But still it cannot be handled.

Is that C?

38 Mr. Merriam. Yes.

The Witness. Now, you can notice here, looking at these panels after they slid, how much more asphalt C had in it than B, by the asphalt that is left on the metal plate. Here is B with a low asphalt content and C with the high, much blacker, and it held up much better.

That C was Exhibit 34 there.

Now, with D we endeavored to make a material which would spray very easily with the spray equipment that is available in most industrial plants, which has pressure tanks.

Now, this material would spray in the usual spraying equipment, pressure equipment. It is very thin, and it is quite obvious, you can see, that it would not adhere in thick layers to a car roof. It would not adhere in thick layers to an invertible or inverted position. Now, being so thin, it slumped quite noticeably, and the shrinkage was very high. That was caused by lack of cork, and the shrinkage is quite noticeable.

Sample E is a material that we made up according to the Dunford patent, followed their formulation.

By Mr. Merriam:

Q. That is patent No. 1,914,912? A. Yes, sir. And we do not believe that it could be sprayed by the method they state it could in their patent. They say "usual spraying equipment," and we believe it is entirely too heavy. If you will look at it, your Honor, you will have a very good idea of it. It is like a plastic roof cement, and it also does not contain any cork and therefore would not be a good insulating material, although it does contain wood
39 fiber.

Now, such a material—that is Exhibit 37 and 37-A.

Q. No. 15-A. A. 15-A?

Q. Yes. A. It is marked 37.

Q. That is 37 (indicating). This is 15 (indicating). A. I see. Such a material does not shrink a great deal, and it does not slide at all. Did you notice the softness of that?

The Court. Yes.

The Witness. That is due to a much softer asphalt it is made up with than our material.

However, we cut the material back—it is a small can; I don't know whether we have it.

Mr. Merriam. It must be missing.

The Witness. Well, when the material was cut back, the Dunford material, with solvent, with petroleum solvent, so that we could spray it, it slid very easily because the asphalt content was much too low and the shrinkage was very high. Now, that material is very hard because the percentage of asphalt in it is relatively low.

By Mr. Merriam:

Q. Mr. Cox, will you read the number on each exhibit as you hand it up, so that there will be no slip-up there? A. Yes. Exhibit 33.

Q. Is what? A. Is the slide of the Dunford material, because with 35 percent solvent—

40 By the Court:

Q. (Interposing) This one I see has shrunk away from the sides of the container. A. From the side.

Q. Is there a reason for that? A. Yes, because we had to add 35 percent petroleum solvent to make it sprayable. That was that previous material that was so heavy.

Mr. Merriam. What is the number on the one that shows the shrinkage?

The Court. It is 14-A.

The Witness. 14-A.

Materials have also been made similar to ours with emulsified asphalts.

By Mr. Merriam:

Q. Will you explain what an emulsified asphalt is? A. Emulsified asphalt: instead of using petroleum solvent as a vehicle, the asphalt is heated so that it is liquid, and the water is in another tank, mixed with an emulsifying agent, usually bentonite or soap. Most common, however, is bentonite. The two materials flow into a machine where the asphalt is broken up into very fine particles and coated over the outer—around the particles with this mixture of clay and water, making an asphalt emulsion. Then from there on the asphalt emulsion is used in the same way as a cutback asphalt, as a vehicle to carry fillers, and products can be manufactured somewhat similar to products manufactured with a cut back asphalt. However, it will not offer the same protection against corrosion, due to the fact that you are introducing water at the time of application;
41 and the bentonite clays, when the emulsion dries—

breaks, as they commonly call it,—the clay is still there between the particles of asphalt, and these always will pick up moisture if moisture is present. Bentonite clays swell greatly, to about three times their normal size, with the addition of water; so when this emulsion dries great shrinkage occurs.

Now, we have Exhibit 12, which is a product made with an asphalt emulsion. You can use the spatula, your Honor. Asphalt emulsions also are apt to mold, which that one has done a little (indicating), if the cork is not treated in some way. They do not slide to a great degree. They do offer a considerable problem in shrinkage because of their high percentage of water.

This is Exhibit 36, the panel, and 13-A, the cup, showing the shrinkage.

With asphalt emulsions containing such a high percentage of water it is impossible to use them at temperatures below 32 degrees, because they freeze, which sometimes causes the emulsions to break; that means a separation of the water and the asphalt; or they become so rigid that they cannot be sprayed.

Mr. Merriam. I think if we just go to H that will be enough, instead of G.

The Witness. H. All right.

Now, H is a product that was recently used—well, as a matter of fact, just the last month—to spray cars at the American Car & Foundry in St. Louis. Now, this material was actually used to spray 350 cars at St. Louis. That is Exhibit 13. Didn't I give you that? We had Exhibit 13.

42 Mr. Merriam. You had 13-A before.

The Witness. Oh, 13-A.

The material has a very high asphaltic content and a very little cork, and it slides. It also shows considerable shrinkage. The panel on that is Exhibit 31.

Mr. Merriam. Let us mark the other one 31-A. This (indicating) is 31-A.

The Witness. Do you want to show those emulsions cracking at this time?

Mr. Merriam. Yes.

The Witness. Emulsified asphalts, when they are sprayed in thick layers over large panels, invariably crack upon drying. We have one of our panels too. Here is one (indicating). Exhibit 25 is an emulsified panel. Now, that is the common occurrence in the way a box-car roof looks after being sprayed with that material, due to the high shrinkage. Exhibit 28 is Dednox. That is a panel made up in the same way (indicating).

By Mr. Merriam:

Q. Would you give the number on that? A. Exhibit 28 is Dednox, and Exhibit 25 is an emulsified asphalt sample with cork.

Q. I show you a picture marked Plaintiff's Exhibit 5. Will you explain what that is? A. Exhibit 5: That is a picture of a car sprayed at McKees Rocks, Pennsylvania, in 1940. It is an insulator made up of emulsion and cork.

(Photograph of car was marked Plaintiff's Exhibit No. 5 for identification.)

43 Q. Mr. Cox, in these various samples you have produced have you any figures on the comparative density of final products?

Let me ask you—

A. (Interposing) Pardon me. We didn't show our product for the shrinkage there; we didn't finish that.

Q. Oh, yes. Go ahead. A. Yes. Exhibit 16 is 553 Dednox. That is our formula number, Exhibit 16.

Q. Is that a formula which is given in the patent application? A. That is the same product, material, as is given in the patent application. This is our material as it goes in the railroad shops for spraying (indicating), and it shrinks, as you can see, slightly.

Did I give the exhibit number on that? 34 on the panel. Exhibit 16 is the can. Mr. Merriam, you don't have any exhibit number on this one (indicating).

Mr. Merriam. I shall mark that 34-A, I guess. I ran out.

The Witness. I gave you the wrong exhibit. That is Exhibit 38 there on the slide panel. You will note how hard that is, your Honor, due to the asphalt being harder, being of a higher melting point penetration, than the other.

The Court. It stays that way. I can see that it stays that way.

The Witness. Yes. It has a certain resiliency, because it was made primarily for box-car roofs, and they flex a little, and we want a certain resiliency to the product.

The Court. Well, let us take a few minutes recess.

44 (Thereupon there was a brief, informal recess, at the conclusion of which the proceedings were resumed as follows:)

The Court. Now I think we may proceed again.

Mr. Merriam. Thank you, your Honor.

(The witness resumed the stand.)

By Mr. Merriam:

Q. You had finished your explanation on that, hadn't you, Mr. Cox? A. Yes.

Q. My next question was: How does the density of the finished product, which you have called Dednox, compare with the density of the finished other products which you made up here? A. Well, our material weighs in a wet state about 7 pounds per gallon. However, on drying it weighs approximately 4 pounds per gallon.

Q. Were any of the other products in that range? A. Yes, I have just—pardon me?

Q. Were any of the other products in that low a range? A. No. I was just getting this (indicating). Sample A, which contains a high asphaltic content, weighed 9.6 pounds per gallon, against Dednox' 7 pounds per gallon. Upon drying it only lost 22 percent in weight, which would mean that it would weigh somewhere around 7 pounds per gallon dry, which would be very heavy.

Sample B weighed 8.6 pounds per gallon in a wet state, and that was a sample with the high percentage of cork. Now, it lost 40 percent of its weight by drying, but that was
also a product that would be impossible to spray be-
45 cause of its mealy characteristics.

Q. Well, its final weight would be what? A. It would be about roughly around 6 pounds; 5½, 6 pounds per gallon, anyhow.

Q. Well, it can be calculated from the figures you have given? A. Yes, I believe it could be. I haven't done it.

Q. All right. A. Sample C weighed 8.6 pounds per gallon.

Q. Well, just to hook this up, sample A was Exhibit 8 in the can. Sample B was Exhibit 9. Sample C we did not have a can of, but we had a slide Exhibit 34. All right.

Now, your next one is Exhibit D. That is Exhibit 11 in the can. A. D, Exhibit 11, weighed 9.6 pounds per gallon, lost 4 pounds upon drying, so that would make that weigh a little over—about 5½ pounds per gallon dry, although there was a great loss in the volume there, so it would probably be more. It would be up around 6½ or 7.

Q. The figure here showed the loss in volume as 38 percent. A. Thirty-eight percent, yes.

Q. Which would bring its dry weight up to about its wet weight, would it not? In other words, the loss in volume and the loss in weight were about the same? A. Just about.

Q. Now, sample E was the Dunford material. What was
the initial weight of that? A. Well, that weighed
46 12.6 pounds per gallon. It only lost 2.6 pounds or 21
percent on drying. The loss in volume is about 18 percent, which makes that a very heavy material. That would weigh well over 10 pounds, even dry.

Q. Now, your sample F was Exhibit 12. What was the loss in weight on that? A. Well, that weighed 10 pounds per gallon. That is an emulsified asphalt sample, emulsified asphalt and cork, and that weighed 10 pounds per gallon and lost 4.3 pounds or 43 percent on drying.

Q. And what was the loss in volume? A. Well, approximately 50 percent I have here, but I think it is about 40 to 50 percent loss in volume there.

Q. Now, what about your sample H, which was your sample in the can? A. Sample H was material that was actually used a month ago at American Car & Foundry, St. Louis. That weighed 9.6 pounds per gallon, and that lost 3 pounds or 31 percent, and the loss in volume was approximately 25 percent on drying.

Now, you want our material here now in comparison?

Q. Oh, yes. Give our material. A. Now, our number 553 Dednox weighs 7 pounds per gallon wet. The loss in weight is 3 pounds or 43 percent, but the loss in volume is approximately 17 percent only, and so our material dry weighs just a little over 4 pounds per gallon, which is a big factor in its insulating value.

Mr. Merriam. Now I should like to offer as Plaintiff's Exhibit—I have lost track of my numbers, so I shall make this 50; I know that is safe—a compilation of the formulae
which went into these samples as to which he has tes-
47 tified, just for the record to show you have it. That
consists of eight pages.

(Compilation of formulae, eight pages, was marked Plaintiff's Exhibit No. 50 for identification.)

By Mr. Merriam:

Q. Now, you have a microscope here, Mr. Cox, and that is all set up on the judge's desk. You may explain what the function of that is, what it is supposed to show. A. Your Honor, we have a sample of Dednox here.

Q. Is that sample numbered as an exhibit? A. That is Exhibit No. 28. And viewing it through the microscope—I will take out a section back here so you can see that better. The flap. (The witness removed a part of the microscope.)

You can see the small minute air pockets there and each individual piece of cork as it becomes saturated with asphalt.

By the Court:

Q. Those white things are pieces of cork? A. Those white things are pieces of cork. They are a tan color there. You see, you get a better view there from the side (indicating).

Q. Yes. A. And these little openings here, air spaces (indicating).

Q. Yes. A. Now, this is an emulsified asphalt, Exhibit No. 25, and you notice here these openings.

Mr. Merriam. Did you get that adjusted all right, your Honor.

The Court. Yes.

48 Mr. Merriam. It requires an adjustment.

The Court. It is very good.

The Witness: You notice these openings go clean through to the metal. Can you see that, your Honor?

The Court. Yes.

The Witness. And it is obvious, then, that that would not be of much value as an insulating coating or protection against corrosion, and it is also impossible in emulsified asphalts to get much cork in there. You notice what a small amount of cork, because it bodies up. You notice the softness of this emulsified asphalt. That is because it is impossible to mix water and asphalt together at a higher temperature than 212, because steam forms. Therefore they have to stay to low melting point asphalts when they use emulsions.

By Mr. Merriam:

Q. You may point out, Mr. Cox, while you have that microscope there,—Have you got a cut piece of your material to show?

The Court. Yes.

The Witness. Yes, I have a cut piece there.

By Mr. Merriam:

Q. You say the cork was still white where it had been cut? A. Yes.

Q. Now, you might compare that with this Exhibit 37, which is the wood flour material. A. Well, this is a piece of material from Dunford's patent (indicating), and this Exhibit No. 37. Now, that is made up with wood flour as called for in Mr. Dunford's patent, and you will notice that it is completely saturated.

49 Is that a comfortable view?

The Court. Not quite.

The Witness. But you will notice that the wood flour is completely saturated. The particles aren't in their original state. We do not believe that would have any insulating value to speak of, because of that.

By Mr. Merriam:

Q. Have you attempted to make up your formula using wood flour in place of cork? A. Yes, we have.

By the Court:

Q. That was Dunford's? A. That was Dunford's patent.

By Mr. Merriam:

Q. What do you find when you attempt to substitute one for the other? A. Well, we found that wood fiber absorbs the asphalt cutback, and although we may even use a wood that is light to start with, such as balsa wood—

By the Court:

Q. (Interposing) Like sugar? A. No. It is about the same—we tried wood fiber, about the same mesh, about 10 to 20 mesh, about the same as that cork that we have here, and we found that, although when you first mix it up it is fairly light and looks pretty well, after about a week the will take out a section back here so you can see that better. The flap. (The witness removed a part of the microscope.)

You can see the small minute air pockets there and each individual piece of cork as it becomes saturated with asphalt.

By the Court:

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By the Court:

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asphalt has penetrated, soaked into the wood, so that the wood is very heavy and thoroughly saturated with asphalt. Besides bodying it would have no value as an insulator, because an insulating efficiency depends on microscopic
50 air pockets, which we have in cork, and for some peculiar reason the cork does not soak up the asphalt cutback; it merely coats it.

By Mr. Merriam:

Q. What was the occasion of your making these tests on wood flour? A. Well, we have done it off and on for many years, but the immediate occasion was: last fall due to the cork shortage we thought perhaps we might have to find some other material to use in place of cork, so that is why we ran these extensive tests.

Q. Were you able to make any product that was satisfactory, to your mind, with wood flour? A. No, not from an insulating value standpoint at all, and it would be very difficult to handle due to its high weight.

Q. In the patent you specify and today you showed the use of cork of 10 to 20 mesh. Will you explain what happens if you take either a finer or a coarser mesh than that? A. Well, if a fine-mesh cork is used we do not have the air spaces between the cork. After all, the cork is coated with asphalt, and in spraying these little particles hit individually on the metal just like a fine mist, and naturally air spaces are in the thickness after, when it is sprayed against a wall. Well, now, if they are fine that will mat together finer, and we won't have so good an insulator. Also, if it is fine, matting together firmly as it would, it wouldn't give a chance to dry out throughout. We depend entirely, as do most asphaltic products of this nature, to dry by
51 evaporation of the solvent or, in the case of an emulsion, by the evaporation of the water, and if it is too dense it will not dry out properly and will also hold any gas or water in, which makes blistering in extremely hot weather on metal panels.

Q. What is the function of asbestos in your product? A. The asbestos is used as a binder to hold the cork together, reinforce it until it can dry.

Q. And what is the function of the chromic acid solution? A. Chromic acid solution acts as a lubricant in spraying and gives the material a tack and an adhesiveness that is not possible to obtain without it. The reason we use a chromic acid solution rather than plain water is that chromic acid preserves metal and does not allow any corrosion to occur until such a time as it has evaporated.

Q. Going back to the asbestos in it, are you familiar with roofing cements and products of that nature? A. Yes, I am.

Q. What do they consist of?

The Court. What kind?

Mr. Merriam. Roofing cements, your Honor.

The Witness. Roofing cements fall into two categories: liquid roof coatings which are brushed on; they are very light in consistency, being about of the consistency of a 50 motor oil or so; and plastic roof cements which are of a troweling consistency and are used for flashing chimneys and gutters and are like a heavy putty. Those consist of cutback asphalts and asbestos fiber. They merely have enough
52 asbestos fiber to get the right consistency, the consistency they want. They run 25 percent to 50 percent asbestos fiber by weight.

By Mr. Merriam:

Q. Can you use either one of those types in your work? A. No, you can't, because the thinner one would slide, and they would offer no insulating value; and it has also been shown that with an excessive amount of asbestos after drying out the asbestos acts as a wick, and it causes moisture to penetrate into the film and causes corrosion, in may cases, that occurs underneath the film.

Q. You have a copy of the Luyties patent, 1,643,021 there? A. Yes, I have.

Q. Have you studied the product described in that patent? A. Yes, I am familiar with it.

Q. And now will you explain to the Court what the purpose of Luyties is and what his compound is supposed to do?

Mr. Merriam. You have a copy, do you, your Honor?

The Court. I have it here.

The Witness. Well, Mr. Luyties in his patent explains that the prime purpose is to make an absorbent material to line the inside of pipes so that in case of freezing there will be a cushioning effect by the compression of the cork or other substances, mainly cork, which will eliminate the possible breakage of the pipe. He does not give any percentages, how much cork to use. He also states that this is a hot mix which would have to be heated with a gas flame, as shown in Figure 14. Is that it?

Mr. Merriam. Figure 3, not 14.

The Witness. What is that?

53 Mr. Merriam. The gas flame is 14. The figure is 3.

The Witness. Yes. Figure 3 but gas flame 14.

The Court. Yes.

The Witness. And it would have to be heated, so it is evidently a mixture of the hot asphalt with just enough petroleum solvent so that it will dissolve easily when heated. We believe it is obvious that this material could not be applied in the method that we use, or to cars or tanks or things where our product is adaptable.

By Mr. Merriam:

Q. What happens to your material if you heat it, say, to 300 degrees Fahrenheit? A. If our material is heated it does not change noticeably in consistency at all. We have incorporated a high filler content to start with, mainly cork, and when our material is heated the solvents are driven off, and it actually becomes heavier. We could not dip a pipe into our material and expect it to come out coated, such as is done in the Luyties patent.

Q. Luyties on page 3, line 34, says:

"After the pipe 10 is removed, it may be heated to a slight degree and placed on a horizontal support and rolled, to give a more uniform disposition of its lining." Do you find that? **A. Yes, I do.**

Q. How do you interpret that? A. Well, by that, for a material to do that it would have to have a high asphalt content and very little cork, so that when the pipe was dipped some of the material would adhere to the inside of the pipe
even though it wouldn't be smooth, but it would at
54 least be there, and then when the pipe was placed in
a horizontal position and heated and rolled it would
flow and coat the inside of the pipe evenly.

Q. Would your material do that under those conditions? A. No, our material will not become lighter when heated. On the contrary, it will become somewhat heavier after prolonged heating.

Q. Have you an opinion as to whether a material which would satisfy Luyties' conditions could be applied to spray to fulfill the conditions under which you operate? A. No, I don't believe it would, because it would not contain enough cork to make it a good insulator, if it was sprayable. Suppose that we did heat the hose all the way right up to the spray gun. It would be very dangerous and impratical to spray a hot material overhead, a material apt to drop down on a man's head, and a material that would break down easily under heat would probably have a low susceptibility factor and be extremely soft in summer and brittle in winter. However, I don't think it could even be applied practically commercially.

Mr. Merriam. I think that is all, Mr. Cochran.

Cross-Examination

By Mr. Cochran:

Q. Mr. Cox, you would say, again, what was the purpose of the chromic acid solution in this product? A. We use the chromic acid solution in there to act as a lubricant, so that it sprays somewhat easier, flows through the hose somewhat easier, and also it gives a tack and a gumminess to the material which isn't there to such a degree without it.

55 Q. Well, you need that in order to have it held together so it will stick on the panel? A. No, you don't have to have it. It can be left out if necessary. However, it makes a better product with it.

Q. What do you use instead of it if you don't have it? A. Well, it is just more difficult to spray with it.

Q. You just leave it out entirely? A. If you leave it out entirely.

Q. Now, in applying this material, spraying it, is it always of the proper consistency as it comes to the man, or does he have to thin it sometimes? A. No, he never thins it at all.

Q. Never in any case has to apply any thinner? A. No.

Q. Now, what is the material which you have referred to as "Dednox"? Is that, for instance, a certain composition, involving certain definite proportions of these materials? A. That is the material we refer to in a patent; I don't have the number offhand.

Q. In the specification of this application, you mean? A. That is right.

Q. Well, now, for instance, is it a material having the proportions set forth in claim 9 of this application? A. Yes, it is.

The Court. What was your question? About No. 9?

Mr. Cochran. I asked, your Honor, whether the material to which the witness has referred and called "Dednox" is the material having the proportions and ingredients set forth in the claim 9.

56 The Court. Yes, I see.

By Mr. Cochran:

Q. Now, will any other proportions do except those? A. Oh, slight variations may be made, yes.

Q. How much of a variation would you say, in percentages, might be made and still have a satisfactory material? A. Well, probably about 4 or 5 percent different in weight. Now, it is obvious that cork never weighs the same.

Q. No. A. And naturally, if cork weighs five pounds per cubic foot in one case and eight in another, we have to vary them, because bulk is our main factor in that particular case with cork, so we have to vary our percentages. This is taken as an average batch.

Q. Substantially, you must conform to the figures given in claim 9 to get a satisfactory product? A. Substantially, yes.

Q. I wish you would turn to claim 13 and tell me whether you think that is the same sort of a composition. I may say, it seems to me they are considerably different, Mr. Cox. A. No, I think that has got more cork in it, without figuring it all out.

Q. Well, I notice, for instance, it says 204 pounds of granulated cork in claim 9. A. Yes.

Q. Fifty pounds of the pulverized cork, and that makes one practically four times the other. A. Yes.

Q. Now, when you go over to claim 13 you have
57 7.7 parts and 1.6 parts of pulverized cork. A. Yes.

Q. And 7.7 is considerably more than four times 1.6. A. Yes.

Q. Now, then, will you refer also to the same claims, where in claim 9 it says 3 parts of asphalt are used to 1 part of gilsonite. A. Yes.

Q. And whereas in claim 13 the proportions are given as 16.6 to 11.1, which is much different than 3 to 1. A. Well, that could end up the same way, though, as a different intermediate melting point asphalt was used. I mean that could still end up the same as if we used different asphalts to start with. The gilsonite is always the same, 275 melting point, but those asphalts in that particular case could be identical finished, even though the percentages are different.

Q. Now, in the Dunford patent I think you said you did not believe it would spray? A. In Dunford's patent?

Q. Yes. A. Yes.

Q. Did you try to spray it? A. No.

Q. Now refer to the Luyties patent. Does he or does he not have the same materials as are used in the plaintiff's application? A. The same materials, did you say?

Q. Yes, the same ingredients. A. No. He has asphalt and cork and asbestos, but I don't believe he has the
58 same percentages.

Q. He doesn't have the percentages at all? A. No, because it wouldn't handle the way it does with those percentages.

Q. Well, he does have the same materials, though? A. He does not have an asphalt cutback. He has an asphalt—a heavy asphalt cutback, cork, and asbestos.

Q. Well, explain, will you please, more definitely what you mean by a cutback? A. Well, a cutback asphalt is an asphalt blended with petroleum solvents.

Q. Yes? A. Well, the percentage of petroleum solvent and asphalt will change the consistency or viscosity of that cutback.

Q. Any physicist or chemist would know that. A. That is right. Now, if he had to heat his product to make it liquid, it is obvious that he did not have much petroleum solvent in it, and he states that he has to heat it to dip the pipe. Therefore he couldn't have had the same type of cutback that we have, because we do not need to heat ours to make it flow.

Q. Now, your definition of a cutback, then, is that it is a petroleum solvent, is added to it, a thinner? A. Well, it can be a coal tar solvent, any solvent of an asphalt.

Q. Well, is it your belief that Luyties does not show that? A. He does show it, but he does not have as high a percentage as we have.

59 Q. Do you have the patent before you? A. I have it here, yes, sir.

Q. You wouldn't say he doesn't show a cutback? A. No; he shows a cutback.

Q. All right. A. I agree with that, but it is not as light a cutback as we have.

Q. If you will notice on page 1 in lines 88 and 89, he says, "to which is added sufficient coal tar or petroleum solvent to render it viscous or fluid to the desired degree.'' A. Yes.

Q. Would that tell you, as one skilled in the art, to put enough of the solvent in there to make it as thin as you wanted it? A. Yes.

Q. Well, then isn't it a fact that Luyties does have the same materials in his composition as is claimed here? A. He has the same materials but different percentages.

Q. He does not give the percentages, does he? A. No, but the way it acts indicates what it is. He has to heat it.

Q. But with this statement which you have just referred to on page 1, about thinning it or adding sufficient solvent to render it fluid to the desired degree, wouldn't that indicate to you that it would not be necessary in some cases to heat it? A. No, because if it was thinned to that degree when you pulled the pipe out it would all slide off. He states in here that the pipe has to be cold, so that when the material hits the cold pipe it chills and adheres and does not run off. He states that it has to be heated or it won't work.

Q. Well, in that particular application which he makes of it is quite true. A. Yes.

Q. But if Luyties had disclosed proportions of materials which are disclosed by the plaintiff, he would have had the same product, would he not? A. No, because it couldn't have been handled, dipped. No, it wouldn't have been the same product as he has here. Do you mean if he used the same proportions we do?

Q. Yes. A. No, he wouldn't have had the same product.

Q. What would be the difference? A. He couldn't dip it; it would be too heavy.

Q. You mean he would have a different product than he's got? A. That is right.

Q. Yes, because of the different proportions? A. That is right.

Q. And the difference is only in the proportions? A. Yes, that makes a great difference.

Mr. Cochran. I think that is all.

Mr. Merriam. Just two questions.

Redirect Examination

By Mr. Merriam:

Q. Mr. Cox, have you the Dunford patent there? A. Yes, sir.

Q. Will you look on page 3, second column, lines 71 and
following, and read what it says about the viscosity
61 of the oil? A. (Reading:) "My deadening compo-
sition has at atmospheric temperatures, approximately the viscosity of heavy machine oil and may quite readily be sprayed cold."

Q. Now, when you made up your material according to his formula was it of the viscosity of heavy machine oil? A. No; it was about of the consistency of a heavy plastic trowelling cement, very heavy.

Q. And then when you modified it, as you described, by the addition of 35 percent of petroleum solvent, was it then of the viscosity of heavy machine oil? A. It was slightly heavier than heavy machine oil but could be sprayed.

Q. Now, with reference to Luyties again, referring to page 1, column 2, lines 90 and following,— A. What column?

Q. Page 1, column 2, line 90. He refers to the use of a small amount of linseed oil. A. Yes.

Q. And a dryer. What effect does that have on the composition? A. A linseed oil makes an asphaltic composition much softer.

Q. On drying what does it tend to do? A. On drying it tends to cause alligatoring and separating eventually after it starts to oxidize.

Q. Have you ever used any linseed oil in your product? A. No, not in our product.

Q. Do you know what would happen if you do? A. Yes,
it would make a much softer sample which would not
62 weather near as well.

Mr. Merriam. That is all. Have you any questions?
Mr. Cochran. No.
Mr. Merriam. That is all.

* * * * * * * * * *

74 **Fred F. Cox** was recalled as a witness for and on behalf of the plaintiff and, having been previously duly sworn, was examined and testified further as follows:

Further Redirect Examination

By Mr. Merriam:

Q. You are the same Mr. Cox who was on the stand before? A. Yes.

Q. I show you a panel that is marked Plaintiff's Exhibit 20. Will you explain what that is? A. That is a sample of Dednox applied to metal by spraying.

75 Q. That is like this sample, Exhibit 17, except that it is on metal, is it? A. That is right, yes.

Q. This morning, Mr. Cox, you were talking about what you called sample H, which was some material applied recently under license in St. Louis. I thought at the time that you had told the results of the application, but I find you have not. Will you explain what happens when that material is applied to cars? A. Well, sample H was recently sold to be applied to some 350 new cars at A.C.F. plant at St. Louis, and they found that they didn't have any equipment that would handle the material, so they came to us, licensed our equipment to apply this material to the box-car roofs. Well, ordinarily we apply 75 gallons of material to a box-car roof. We found out that that amount is necessary to do a good job in preventing condensation. But they were unable to apply that amount; they only could apply 45 gallons per car roof, and even then they had trouble with the material icicling down, as we call it, dripping along the edges and hanging low, and also spots falling if the man got it a little too thick, and we believe this was due to the weight of the material, for it weighed 9.6

pounds per gallon against our 7 pounds. And it was also very difficult to spray in cold weather, and we had our service engineer on the job at all times to service our equipment. However, he had nothing to do with the material itself.

Q. Sample H is the one which is Plaintiff's Ex-
76 hibit 13? A. That is the same material, yes.

Mr. Merriam. Now, your Honor, I should like to offer in a group the exhibits which Mr. Cox testified about and identified in his testimony. They are here. I don't remember the numbers offhand. There is no objection, is there, Mr. Cochran?

Mr. Cochran. There is no objection.

The Court. They will be received.

(Plaintiff's Exhibits referred to and identified heretofore were received in evidence.)

Mr. Merriam. There is one other thing. In talking about these samples Mr. Cox sometimes referred to sample A or B, and I had him in the lunch hour compile a list of sample A and the corresponding exhibit, because I was not sure that those were clear. I can have him read this in or I can just give it to the reporter and let him check his record with it that might be simpler.

The Court. I think perhaps that is the best suggestion. That may be done.

(The compilation referred to is as follows:)

Letter	Sample Can	Slide	Shrinkage Can
A	Ex. 8	Ex. 8B	Ex. 8A
B	Ex. 9	Ex. 30	Ex. 9A
C	Ex. 10	Ex. 34	Ex. 10A
D	Ex. 11	Ex. 32	Ex. 11A
E	Ex. 15	Ex. 37	Ex. 15A
E+		Ex. 33	Ex. 14A
F	Ex. 12	Ex. 36	Ex. 13A
G			
H	Ex. 13	Ex. 31	Ex. 31A
553	Ex. 16	Ex. 38	Ex. 34A

77	Emulsified Panel	Ex. 25
	#553 Dednox	Ex. 28
	Gilsonite	Ex. 3B
	Asphalt Flux	Ex. 3A
	Asphalt MP-180	Ex. 3C
	Asphalt & Gilsonite	Ex. 3d

Mr. Merriam. With that I rest. That is all.

* * * * * * * * * *

62 **Orville V. McGrew**, the plaintiff, was called as a witness in his own behalf and, having been first duly sworn, was examined and testified as follows:

Direct Examination

By Mr. Merriam:

Q. Will you state your full name? A. Orville V. McGrew.

Q. And your present residence? A. 4950 Chicago Beach Drive, Chicago.

Q. You are the same Orville V. McGrew who is the applicant in the case that is concerned here? A. Yes.

Q. You have heard Mr. Cox's testimony? A. Yes.

Q. Oh, I might ask you, are you affiliated with the McGrew Paint & Asphalt Company? A. Yes.

Q. In what position? A. I am president of the McGrew Paint & Asphalt Company.

Q. And that company is a licensee under your patents relating to Dednox and your applications relating
63 to Dednox? A. Yes.

Q. To what extent? A. The McGrew Paint?

Q. The McGrew Paint & Asphalt. A. They are licensed to manufacture Dednox.

Q. And are they licensed to apply it? A. No.

Q. Is any other concern licensed to apply Dednox? A. Yes, the Dednox Company is licensed to apply it to railroad rolling stock, and the Insul-Mastic Corporation of America are licensed to apply it for industrial work and also domestic work.

Q. Do they use the name "Dednox"? A. No; they refer to it as "Type D Insul-Mastic."

Q. D for David? A. Yes.

Q. Now, on railroad rolling stock Mr. Cox described it as being applied to box cars. Is it also applied to other types of rolling stock? A. Yes, it is applied to refrigerator cars and Pullman cars, streamlined trains; in fact, every type of railroad rolling stock.

Q. Have you the figures on the sales of the material for railroad rolling stock? A. Yes.

Q. Will you just read those off by years? A. In 1936 we applied Dednox to 450 freight cars and 100 refrigerator cars.

In 1937 Dednox was applied to 6,300 freight cars
64 and 1,250 refrigerator cars.

In 1938, 2,000 freight cars and 1,500 refrigerator cars.

In 1939, 4,250 freight cars and 2,325 refrigerator cars.

In 1940, 5,300 freight cars, 4,200 refrigerator cars.

In 1941, 13,200 freight cars and 5,200 refrigerator cars.

In 1942 there have been 5,000 freight cars completed and 500 refrigerator cars. At the present time there are 20,000 freight cars on order.

Q. And you have the totals there, do you, for the entire period? A. Cars completed total 36,500 freights cars and 15,075 refrigerator cars.

Q. Are there any other licensees in countries other than the United States under this Dednox formula?

The Witness. Will you repeat the question?

Mr. Merriam. Will you read it?

(The pending question, as above recorded, was read by the reporter.)

The Witness. Yes, we have a licensee in Canada.

By Mr. Merriam:

Q. Mr. Cox, in connection with what he called his sample H, described the material that was recently used in St. Louis. Was that material used under your license? A. Yes, that was applied under my license covering the equipment.

Q. That is the spraying equipment? A. Of the spraying machine.

Q. What was the royalty paid on that license? A. Eight cents per gallon.

65 Q. And who was the licensee? A. The American Car & Foundry Company.

Q. Who supplied the material? A. The Intercoastal Paint Company of St. Louis.

Q. Did you also supply your spraying equipment for that job? A. For this job, yes.

Q. Do you happen to know who the president of the Intercoastal Company is? A. Mr. Dunford.

Q. The same Dunford who is the patentee in patent 1,914,912? A. Yes.

Mr. Merriam. That is all.

Mr. Cochran. I do not think I have any questions.

* * * * * * * * * *

Leslie M. Johnston was called as a witness for and on behalf of the plaintiff and, having been first duly sworn, was examined and testified as follows:

Direct Examination

By Mr. Merriam:

Q. Will you state your full name? A. Leslie M. Johnston.

Q. Where do you live, Mr. Johnston? A. My residence address?

Q. Yes. A. Greenwich, Connecticut.

66 Q. And what is your occupation at the present time? A. I am president of the Insul-Mastic Corporation of America.

Q. And how long have you been president of that concern? A. Since April 1, 1941.

Q. And is that the concern which Mr. McGrew referred to as being licensed under his patents and applications regarding this type of material? A. It is.

Q. Now, Mr. McGrew stated that the Dednox type of material was sold by your concern under the name of Insul-Mastic Type D; is that correct? A. It is.

Q. Will you state for what purposes it is sold? A. You mean why the name was changed to Insul-Mastic?

Q. No. Tell what you sell it for, what it is used for. A. Yes. Well, Type D, as has been described to the Court, is a material that does two things in industry. It insulates and protests steel from corrosion, and those are two great qualities of Type D.

Q. By the way, I forgot to ask you, What was your position before you came with the Insul-Mastic Company? A. Just directly before I came with the Insul-Mastic Corporation I was president of the Cemenstone Corporation of Pittsburgh, manufacturers of precast concrete.

* * * * * * * * * *

Q. And prior to that time? A. Prior to that time I was
for 28 years with the iron and steel industry in Pitts-
67 burgh. When I retired from the iron business I was
vice-president of the A. M. Byers Company, manu-
facturers of wrought iron pipe.

Q. Now, in your work with these three companies, the Byers and the Cemenstone and the Insul-Mastic Corporation, have you come into contact with various types of asphalt coatings in the trade? A. Yes.

Q. Can you tell us some of those types? A. Well, all that we knew, and not being scientists but being raised in the school of maintenance in the mills—for instance, I went into the pipe mills as a puddler and then a roller and came up through the practical side of mill operation. So that naturally we grew to have the responsibility of maintenance: maintenance of roofs and the prevention of corrosion of buildings, and so forth. So that we became, all of us, acquainted with materials known at that time and through that period for usefulness for that purpose. So that most of us had a very real knowledge of the practical importance of asphaltic materials and tar and pitches used for that purpose.

Q. Was asphalt widely used as one of the protective coatings for metal? A. Yes, it is. At least I will say this: it was back in our days. When we would look up at a roof that was turning into a lace curtain, so to speak, due to corrosion, we would go up there with a mop or a swab and a pail of asphalt or tar and pitch and swab it over the roof and lay down a piece of muslin and swab over the top of that, and we would get a certain amount of life out of that old roof.

Q. Did you make any investigation of asphalt products
68 or coating products in general prior to your coming to Insul-Mastic Corporation? A. Not from the scientific point of view, because I am not a scientist and I am not a chemist.

Q. Well, did you have any made for you? A. Beg pardon?

Q. Did you have an investigation made for you? A. Yes, a very careful one.

Q. What did that consist of? A. Well, I might say that during the period of the three years with the Cemenstone Company we had a fellowship at the Mellon Institute in Pittsburgh, and we were searching for a covering—a wall covering on concrete that would give complete waterproofing and color at that time, and we couldn't find anything in the country through that great institution that was to our judgment any good. I don't mean to decry other materials, but I mean the life of two, three, four or five years was about the best we could find. So that, rather a curious incident, I was at a cocktail party up at the Rolling Rock Club outside of Pittsburgh in June 1940, one Sunday afternoon, and a friend touched me on the shoulder and asked me if I knew anything about Insul-Mastic. I said that I had never heard the word before, and I asked him why he asked.

Well, he said he had put a little money into it and now he was trying to find out about it.

I told him, a pretty good time to try to find out after he put his money into it. And then I said, "Are you in earnest?" And he said, "Yes."

And I said we had a fellowship at the Mellon Institute, and certainly those 350 chemists, some of them, ought to know something about Insul-Mastic. Dr. McPherson, who was our chemist and fellow, was in Seattle on his vacation in June, July of that year. I wired him to go to Chicago, go into the Insul-Mastic laboratory, and stay there, and then go out into the field and stay there until he could tell me about Insul-Mastic. He came back in about a month. He walked into my office, and I said, "Doctor, what did you find?" 69

He said, "I think I have found a rather amazing material."

Mr. Cochran. May it please, your Honor, I think that is hearsay evidence. I do not see that that is admissible."

The Witness. I don't want to—I thought perhaps—

The Court. Yes, that would be hearsay.

The Witness. Yes. Well, I am sorry. I am just a little absorbed, I guess, in my own story, to try to bring this thing up to date.

Mr. Cochran. I agree with you.

The Court. I suggest that we recess now until 1:30.

The Witness. Yes, sir.

Mr. Cochran. Until 1:30. Thank you, your Honor.

(Thereupon, at 12:30 o'clock a. m., a recess was taken until 1:30 o'clock p. m. of the same day.)

70

After Recess

The proceedings were resumed at 1:40 o'clock p. m., at the expiration of the recess.

Thereupon **Leslie M. Johnston,** the witness under examination at the time of taking the recess, resumed the witness stand and was examined and testified further as follows:

Direct Examination—Resumed

Mr. Merriam. Have you the last question, Mr. Reporter?

The Court. He had just started to tell what Dr. McPherson said, and then we decided we ought not to hear that because it was hearsay.

By Mr. Merriam:

Q. Will you go ahead, Mr. Johnston, and state how your Insul-Mastic Type D compares with other products for the purposes of insulating and protecting metal? A. I think perhaps the best illustration would be a company like the Koppers Company, for instance, who, as we know, are manufacturers or dealers in both asphaltic and tar products in a large way in roofing.

Q. That is K-o-p-p-e-r-s? A. K-o-p-p-e-r-s. And they have a large plant at New Haven, Connecticut, and they have in that plant out of doors a large rectangular tank about a hundred feet long and 14 feet high, or 12 feet, of steel, that had been insulated with conventional insulating materials—rock wool and wood, and so forth—for retaining a temperature in the inside of that tank of the materials which they used in their processing. That insulation 71 had begun to go and let moisture into it, which of course killed the value of the insulation. And our applyer in New Haven got the privilege of putting on one side of that tank in the summer of 1941. After they observed the Type D, which was sprayed right onto the steel, and observed its action through the changes of temperature of the winter, then they asked our licensee to finish the tank this spring, which he did. They then found Type D something which they could not and did not manufacture or handle.

Q. Just tell what you have done, where these applications are. A. All right. Then they proceeded to use it in other installations in the same plant for like purposes, on other circular tanks, for instance, where they had used other insulation. Then they recommended it to the Philadelphia Fuel & Coke Company, I think, or else the Philadelphia Coke Company, which is another subsidiary of the Koppers Company in Philadelphia, Pennsylvania, and our licensee went over to Philadelphia and did that job for them there.

Q. What was it used on there? A. Beg pardon?

Q. What was it used on in Philadelphia? A. On a circular tank, which is important, because the material, if it is, as Mr. Cox described, too heavy, as you do a circular tank it will tend to pull down of its own weight and drop off, which is a very important matter in applying on a circular tank.

Q. That was the outside of these tanks? A. The outside
of the tank. Then the contractor who built the Wright
72 Aeronautical Plant at Cincinnati heard of the
material through the Philadelphia Coke Com-
pany, and he asked them to come to Cincinnati to do a job on also circular tanks to prevent condensation on the outside of those steel tanks, at a temperature of about 50 degrees inside the tank, 80 degrees room temperature, and 90 humidity, and there was simply moisture forming so rapidly on the steel tanks that the corrosion was very severe. That was used for that purpose there.

And so on. I could enumerate example after example if you care to have me.

Q. Well, is the material used in submarines? A. Yes, also on submarine work where the exhaust lines of the sub—of the Diesel engines—I understand the temperature of those lines runs up around 1500 degrees. Now, while our type D material will not stand 1500 degrees on the bare pipe, they found by using a thin asbestos strip as the first application, and then using our Type D on top of that, that they saved a relatively tremendous amount of space, which is so valuable in a submarine, and got the insulation which they desired.

Q. Is there a particular problem of condensation inside of a submarine? A. Yes, a very great problem of condensation inside of a submarine.

Q. Does the Koppers Company have an asphalt coating compound of its own that it sells? A. Yes, a roofing mate-
rial. They go into the business through the roofing
73 materials and asphaltic materials, so they are quite
familiar with all asphaltic materials, naturally, as
the Byers Company would be or any of the other great roofing companies; that is, the great asphalt people as well as tar and pitch.

Q. In your experience in this field have you come across a material which could be sprayed onto vertical walls or overhanging walls and retain its characteristics in thicknesses up to a quarter of an inch? A. No, in all of our experience —of my own personal experience I have never found any that would stay put, withstand vibration, withstand shock, or withstand changes of temperature; nothing that I know of.

Q. Are you familiar with the amount of advertising that has been done on Dednox or on Insul-Mastic Type D in the past? A. Yes, I am.

Q. Will you state what it is? As far as Dednox is concerned, of course, I am not connected with the Dednox Company, which does the Dednox work for the rolling stock of railroads; so that the Insul-Mastic Corporation of America, as Mr. McGrew explained, has the merchandising of the same material, of course under a different name, called Insul-Mastic, for the whole United States of America and foreign countries, other than the rolling stock of railroads.

Now, the Insul-Mastic Corporation of America first got up a little digest called "Insul-Mastic," which covers not only Type D but the other two materials made from like materials except the mica. Then, we just got out, off the press this last ten days, our first approach to industry as advertising in the shape of a treatise on the gilsonite 74 asphalt, Insul-Mastic. There has been no national advertising, naturally, because we are busy setting up a national merchandising organization, and until we get a certain amount of coverage we cannot do national advertising, so the name "Insul-Mastic" is totally unknown except as sales footwork.

Q. All I want to know is what avertising you have done. A. Yes.

Q. The two types you have given me are all that you know of; is that right? A. Yes; that is true.

Mr. Merriam. That is all.

* * * * * * * * * *

Sept. 20, 1927.

C. G. LUYTIES

1,643,021

CONSTRUCTION OF PIPES AND THE LIKE

Filed March 1, 1920

Fig. 1

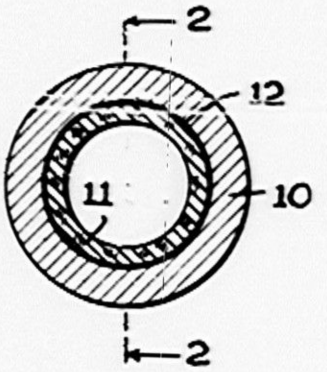


Fig. 2

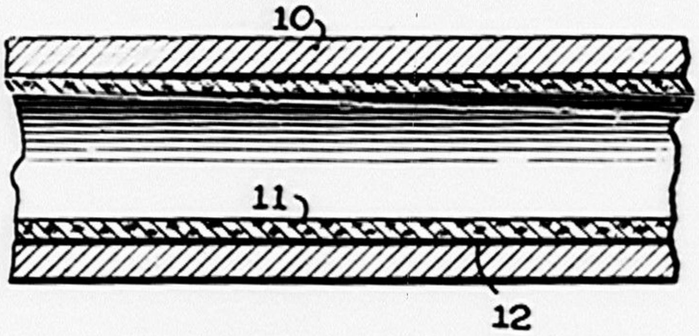
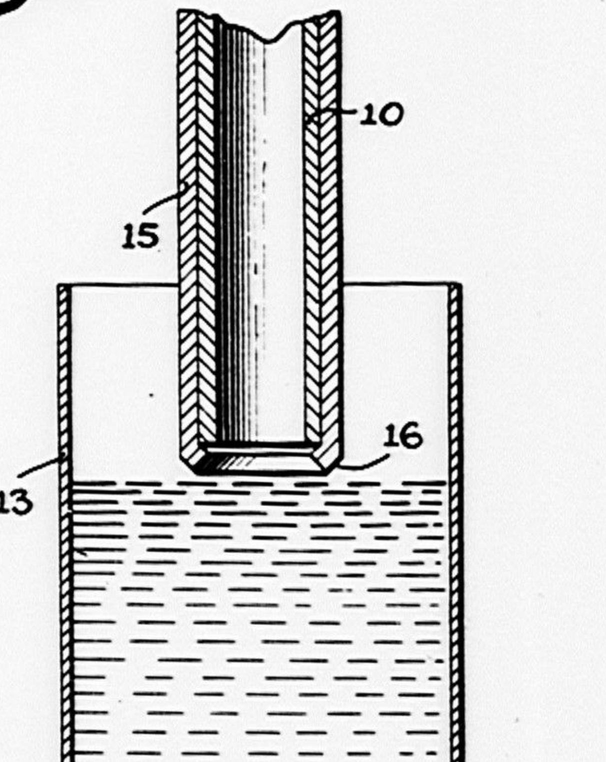


Fig. 3



Inventor

Otto G. Luyties

By his Attorneys

Emery, Varney, Blair & Hoguet

Patented Sept. 20, 1927. **1,643,021** 64

UNITED STATES PATENT OFFICE.

OTTO G. LUYTIES, OF NEW YORK, N. Y.; HILDA M. RIDDER AND GUSTAV A. LANZKA ADMINISTRATORS OF SAID OTTO G. LUYTIES, DECEASED.

CONSTRUCTION OF PIPES AND THE LIKE.

Application filed March 1, 1920. Serial No. 362,590.

This invention relates to the construction of pipes and the like. One of the objects thereof is to provide a simple and practical construction for pipes and the like which is especially adapted to meet efficiently conditions of use. Another object is to provide a construction of the above type adapted to withstand without injury the freezing of its contents. Another object is to provide a practical art whereby constructions of the above type may be readily and cheaply made. Other objects will be in part obvious and in part pointed out hereinafter.

The invention accordingly consists in the features of construction, combinations of elements and arrangement of parts, and in the several steps and relation and order of each of the same to one or more of the other steps, all as will be illustratively described and the scope of the application of which will be indicated in the following claims.

In the accompanying drawings in which is shown one of various possible embodiments of the mechanical features of this invention and a step of the above art,

Figure 1 is a cross section of a pipe;

Figure 2 is a longitudinal section taken along the line 2—2 of Figure 1; and

Figure 3 illustrates a step of the above art.

Similar reference characters refer to similar parts throughout the several views of the drawings.

Referring now to Figure 2 of these drawings, there is illustrated at 10 a rigid pipe, and it may here be noted that the term "pipe" is broadly used to denote vessels of various forms to which this invention is applicable.

This pipe 10 has positioned therein a lining 11, the composition of which and the method of application of which will hereinafter be dealt with in detail. It may be noted, however, that this lining or inner member is compressible and that by the term "compressible" is meant a characteristic by virtue of which the body so defined is adapted to suffer an actual and appreciable reduction in total volume upon being subjected to a compressive stress. This compressibility is preferably achieved either by incorporating closed air or gas pockets in the body of a single material, or by employing a filler material with a binder; in which filler, for example cork, there are comprised air pockets of such structure as will result in compressibility as above defined.

This compressible material is preferably formed as above set forth as a lining of substantially uniform cross-section which may if desired be held in place by a separate adhesive coating as at 12.

The proportions or thickness of this lining are such, having due regard for its compressibility that it is repeatedly compressible to an extent which is as great or greater than the expansion due to freezing of the contents of the pipe. In other words, if the pipe be for example of the usual cylindrical form, any given unit of length of the pipe with its lining will be capable of increasing its volume by compressibility of the lining to an amount which is at least equal to the increase of volume of water filling such unit of length upon freezing and without endwise displacement. Also the material as a whole should be sufficiently elastic to so far resume its original form after compression as will permit it to accommodate repeated expansions due to repeated freezings.

As one form of material for lining, I propose a composition comprising a binder material and a filler material. The binder material may be formed of asphalt with asphaltite, such as gilsonite, added to raise its boiling point, to which is added sufficient coal tar or petroleum solvent to render it viscous or fluid to the desired degree. Also there is preferably mixed with the asphaltite a small amount of oil, preferably an oxidizing organic oil such as linseed oil, which may act as a softener. Also and if desired, a small percentage of a drier such as Prussian blue may be added to improve the drying property of the resultant mixture. The filler is preferably formed of ground cork, the fineness of which may be perhaps about that of ordinary granulated sugar, although good results may be obtained with a coarser or finer cork. After grinding the cork, the finest of the resultant material is preferably sifted out and discarded, as it will be found to contain a large proportion of relatively incompressible material such as occurs throughout the body of the unground cork.

As is well known, the substance cork contains in itself a large number of air cells isolated one from another, and the volume of which may be reduced on compression of the material. I also preferably use in the filler a small proportion of a fibrous substance such as asbestos which adds to the strength of the resistant material especially when it is used in thick coatings. These substances are thoroughly mixed, preferably under the influence of heat and preferably to such an extent that each particle of cork, and asbestos if it be used, is coated with the binder.

The lining may be applied as follows. If desired, a thin coating of the clear binder is first applied to the inner surface of the rigid iron pipe 10. This however is not strictly necessary. Then the material comprising the binder and filler, mixed as above, is placed in a vat as shown at 13 in Figure 3 of the drawings, and the vat heated, as indicated by the burner 14. The pipe 10 is then inserted within a tight-fitting outer casing 15, the lower end of which may be inturned to provide the shoulder 16. The entire pipe with its casing is then dipped within the vat 13 until its inner surface is thoroughly coated, whereupon it is removed and withdrawn from the casing 15 which may be repeatedly used for successive pipes. During this operation the temperature of the pipe 10 is preferably considerably below that of the material into which it is dipped in order to cause the desired thickness to adhere. After the pipe 10 is removed, it may be heated to a slight degree and placed on a horizontal support and rolled, to give a more uniform disposition of its lining. Also if desired, a mandrel coated with a substance to prevent adhesion, may be inserted to fit within the lining and smooth its inner surface. Neither of these latter steps appears however to be essential, and it is to be understood that many of the features of this invention may be attained by introducing the material within the pipe in another manner, such as pouring it inside the same and subsequently rolling it in a substantially horizontal or slightly inclined position.

If a secure adhesion of the lining to the inner surface of the pipe is desired, it is sometimes expedient to clean this inner surface before the pipe is treated.

It is also to be noted that the pipe with its lining is preferably thoroughly dry before being put into use, this drying being hastened by the use of heat.

It is to be understood that although there has been herein described somewhat in detail an illustrative embodiment of the mechanical features of this invention and an illustrative method of carrying on my art, nevertheless no single feature, either of embodiment or process, is to be considered as limiting other than as set forth in my claims, and the various individual features or steps are of independent value although possessing added advantage when combined with other features or steps.

I claim as my invention:—

1. In construction of pipes and the like, in combination, a pipe having therein a lining which comprises a filler material susceptible to a substantial reduction in volume under the influence of pressure, and a binder by which said filler material is held in position, said filler material being comminuted and intermingled with said binder.

2. In construction of pipes and the like, in combination, a pipe having therein a continuous molded lining through which are closed and relatively isolated air or gas chambers.

3. In construction of pipes and the like, in combination, a pipe having extending along its interior a body comprising cork, a fibrous substance, and binding means.

4. In construction of pipes and the like, in combination, a pipe having extending along its interior a member comprising ground cork and a binding substance with which said cork is intermingled.

5. In construction of pipes and the like, in combination, a pipe having extending along its interior a member comprising ground cork and a fibrous substance intermingled with a binding substance and capable of sufficient reduction in volume under pressure to accommodate the expansion of water filling said pipe upon freezing.

6. In construction of pipes and the like, in combination, a rigid pipe having a lining comprising ground cork, a fibrous substance and a binder with which said cork and fibrous substance are intermingled and by which they are held in position.

7. In construction of pipes and the like, in combination, a rigid pipe having extending along the same a member formed of a substance susceptible to substantial reduction in volume under the influence of pressure ground and intermingled with an elastic binder.

8. In construction of pipes and the like, in combination, a rigid pipe having extending along the same a member formed of a substance susceptible to substantial reduction in volume under the influence of pressure ground and intermingled with an elastic binder, said member being formed into a lining along the walls of the pipe.

9. In construction of pipes and the like, in combination, a rigid pipe having therein a lining comprising a substance susceptible to substantial reduction in volume under the influence of pressure ground and intermingled with an elastic binder.

10. In construction of pipes and the like, in combination, a rigid pipe having therein a lining comprising a substance susceptible to substantial reduction in volume under the

influence of pressure ground and intermingled with a binder which includes asphalt in its composition.

11. In construction of pipes and the like, in combination, a rigid pipe having therein a lining comprising a substance susceptible to substantial reduction in volume under the influence of pressure ground and intermingled with a binder which includes in its composition asphalt and an oil.

12. In construction of pipes and the like, in combination, a rigid pipe having therein a lining comprising a ground substance susceptible to substantial reduction in volume under the influence of pressure and a fibrous substance, both intermingled with a binder which includes in its composition asphalt and an oil.

13. In construction for pipes and the like, a water pipe having therein a lining of cork of sufficient thickness to be capable for a given unit of length of said pipe of a reduction in volume under pressure at least equal to the expansion of water filling such length of pipe upon freezing, and a material adhesive to said cork and insoluble in water securing said lining in place.

In testimony whereof, I have signed my name to this specification this 20th day of February, 1920.

OTTO G. LUYTIES.

June 20, 1933. **G. B. DUNFORD** 1,914,912

DEADENING COMPOSITION

Filed May 18, 1929 2 Sheets-Sheet 1

Fig. 1

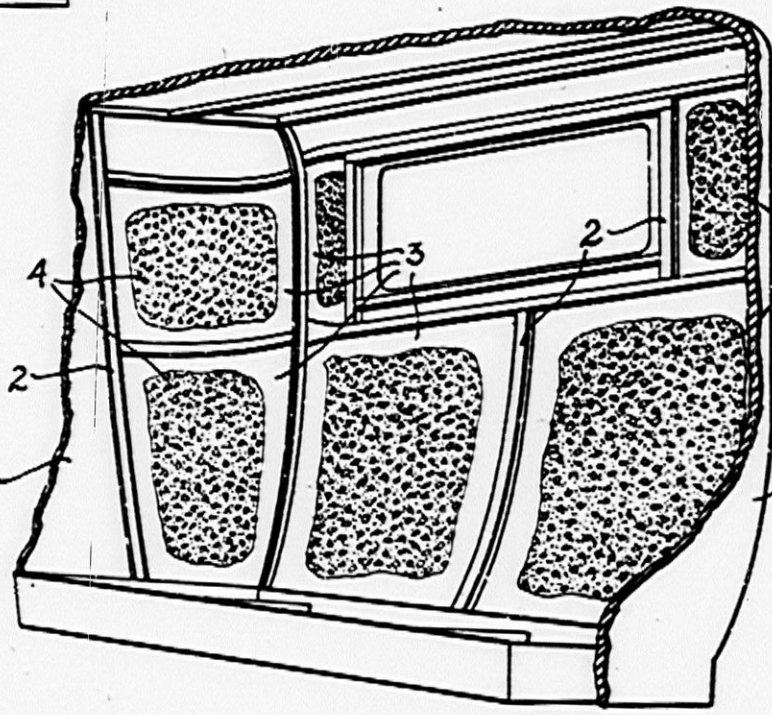
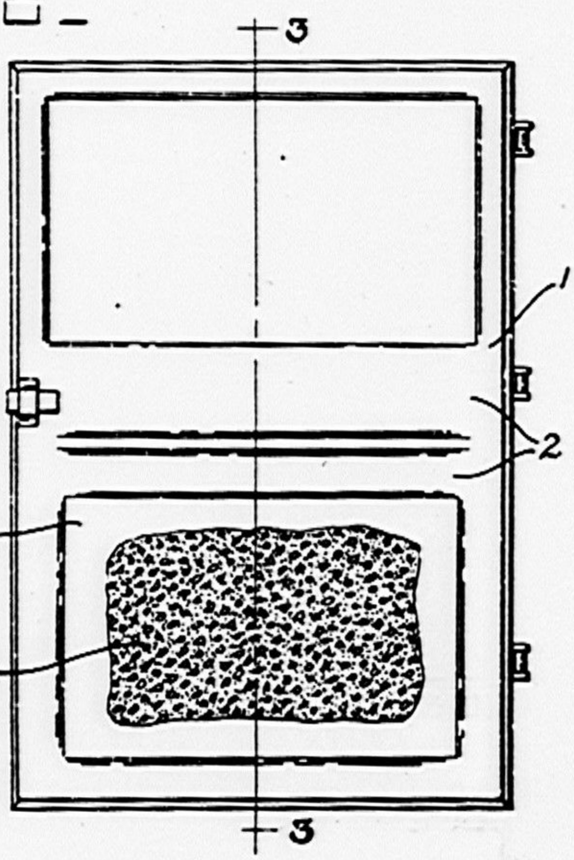


Fig. 2



Inventor

George B. Dunford

By Daniel I. Mayne

Attorney

June 20, 1933. **G. B. DUNFORD** **1,914,912**

DEADENING COMPOSITION

Filed May 18, 1929 2 Sheets-Sheet 2

Fig. 3

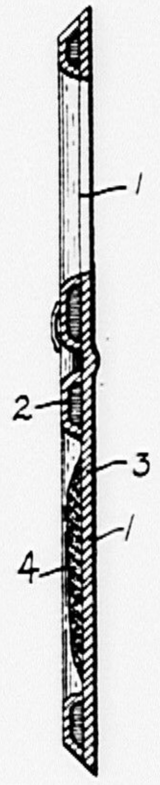
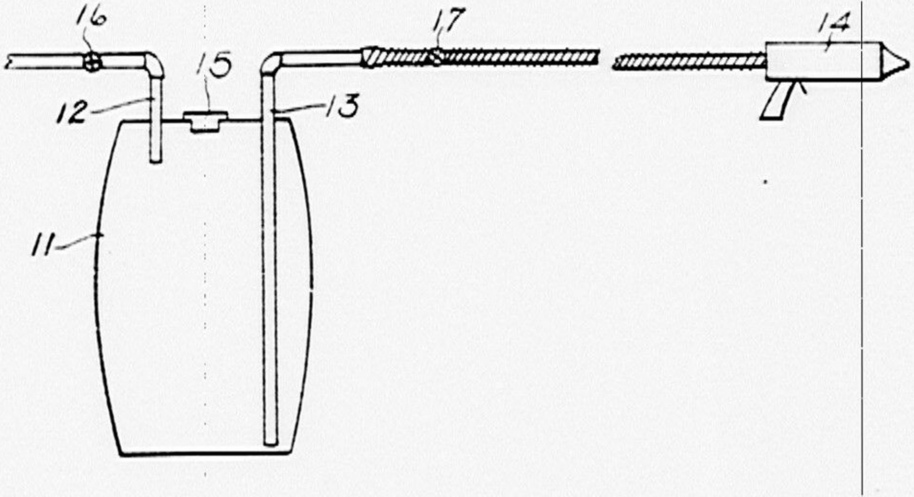


Fig. 4



Inventor

George B. Dunford

By Daniel V. Mayne

Attorney

UNITED STATES PATENT OFFICE

GEORGE B. DUNFORD, OF ST. LOUIS, MISSOURI

DEADENING COMPOSITION

Application filed May 18, 1929. Serial No. 364,046.

This invention relates to automobile bodies having the inside of the metal body shell coated with a plastic deadening composition and more particularly to the deadening composition and the method of applying it to the inside of the body shell.

Most automobile bodies of present day construction are built up from a small number of sections, such as the side, rear and cowl sections which are pressed from relatively thin sheet steel of the desired thickness and secured together by welding or the like into a substantially unitary structure or shell which is reinforced with sills and joists and then finished and upholstered to constitute the completed automobile body. When, however, bodies so constructed as to have panels or expanses of sheet metal, as above referred to, are put into use it has been found that a very objectionable rumble or vibration is set up in those panels, sympathetic with the vibration of the engine, so that the enjoyment of the automobile is materially lessened. This rumble or vibration is more particularly noticeable in the closed type of car, such as the sedan or coupé.

By considerable work upon this subject I have found that the above referred to rumble or vibration can be completely or at least substantially deadened or dampened if, following the construction of the metal body shell with its accompanying sills, joists and braces, the inner side of the metal shell, or at least the panels thereof, are coated with a composition composed largely of bituminous materials and fiber together with other ingredients to facilitate application of the composition. I am aware that it has been previously attempted to deaden vibration in automobile bodies by pasting on the inside of the panels a fiber board which has been formed prior to its application to the body or even by spreading on the panels with a trowel or brush a plastic coating of some kind. Such prior known methods are, however, tedious and expensive and quite unsatisfactory from the standpoint of economy and large scale production.

I have discovered that a composition which is very effective for deadening the vibration and rumble referred to and which can be quite economically applied comprises bituminous materials, a solvent therefor, fiber and clay. Under some conditions a small quantity of water may be added to the composition, although it is preferred not to do so. Much to the surprise of many who have handled bituminous mixtures, I found that the composition perfected by me could be quite economically applied to the inside of an automobile metal body shell by means of a spray gun actuated by air pressure, the spray gun merely having a nozzle suitable for handling my composition rather than paint or other liquids ordinarily sprayed with a spray gun.

My improved composition may be varied somewhat in the proportions of the various constituents used, or various equivalents hereinafter mentioned may be resorted to without departing from my invention as will be apparent to those skilled in the art. The following example is therefore merely illustrative of the manner in which my invention may be carried out.

What may be designated as a bituminous mixture may first be prepared by digesting in a steam jacketed kettle or mixer approximately 10 parts, by weight, of Gilsonite asphalt having a melting point of about 275° F., approximately 12 parts of ordinary petroleum asphalt having a melting point of 190 to 200° F. and approximately 38 or 39 parts of ordinary varnish makers' and painters' naphtha having an initial boiling point of about 190° F. The temperature and time of mixing may be varied somewhat; it is necessary merely to mix until a good solution of the asphalts in the naphtha is obtained; it is preferable that the temperature shall not exceed 185° F.

What may be designated as a hydrocarbon mixture may next be prepared by cooking in a varnish maker's kettle for about an hour and a half at a temperature of about 475° F. approximately 33 parts by weight of cottonseed pitch having a melting point of about 110° F. and about 4 parts of ester gum, namely, rosin which has been esterified by means of lime and glycerine. After proper digestion, the gum and pitch is permitted to cool to about 400° F. whereupon about 2 parts of lead oleate is added and digested therewith for a short time.

What has been above designated as the bituminous mixture and as the hydrocarbon mixture are next thoroughly mixed together at a temperature of about 175° F. thus forming a solution which I will designate as a carbonaceous mixture. When compounded as above described a carbonaceous mixture of approximately 47 to 48 gallons will result. In the claims appended to this application, where the terms bituminous, hydrocarbon or carbonaceous mixture are employed it is intended to define the mixtures above designated broadly by that terminology, such equivalents as I may be entitled to being, of course, included therein. For instance, the quantities and the melting points of the asphalts may be varied somewhat the purpose of using the proportions stated being to add adhesiveness to the composition and to obtain a composition which will not be brittle when cold. Other well known solvents for the asphalts may be used in varied proportions depending upon the final viscosity desired. The ester gum gives to the mixture a sticky texture promoting adhesiveness and the cottonseed pitch gives a mixture that is firm at the higher atmospheric temperatures. Obviously these constituents may be varied as one desires to increase or decrease the property which they contribute to the mixture. The lead oleate acts as a drying accelerator and also may be varied if need be. All such variations depend somewhat upon "conditions on the job" and are subject to the control of those preparing the mixture at the instance of the user thereof as he may desire the properties thereof to be varied.

Into a 47 or 48 gallon batch of the above described carbonaceous mixture is thoroughly incorporated finely ground wood flour of about 20 or 25 mesh and a quantity of long fibered asbestos. While the quantities of these constituents may vary over a fairly wide range, I prefer to employ approximately equal quantities, by weight and to the above batch of carbonaceous mixture would therefore preferably add about 70 pounds each of the wood flour and asbestos. Obviously other vegetable fibers may be employed when cut up sufficiently fine and finely ground paper stock might also be employed. I may also increase the amount of asbestos used and decrease the wood flour or I may do the reverse. The carbonaceous mixture is normally limpid enough to permit the incorporation of the fiber into it although it may be heated slightly if desired.

Into the mixture thus far prepared, I next thoroughly incorporate about 60 pounds (dry weight) of bentonite (colloidal) clay which is a clay that very rapidly takes up liquid and swells to give a slight fluffiness to the mixture. The very surprising thing which I have discovered is that a deadening composition prepared as I have described can be sprayed through a spray gun. It has always been thought that in order to utilize the properties of bentonite or similar colloidal clays that it was necessary to use therewith a considerable quantity of water. Emulsions have been known for many years but no one has known, to my knowledge, that by the mere addition of bentonite to a mixture of carbonaceous materials and fiber a mixture could be obtained which would have the necessary "slip" to be sprayed with a spray gun and yet have sufficient adhesivity to stick to metal and form a tough coating which would not be brittle at lower atmospheric temperatures and which would be sufficiently firm at higher atmospheric temperatures not to flow. I attribute the property of "slip", not only to the colloidal clay but to the asbestos fiber. In some surprising fashion the asbestos fiber gives to my composition sufficient "slip" to permit it to be sprayed, and this without the addition of large quantities of water (or in fact any water) as was heretofore thought necessary in connection with mixtures containing colloidal clay and fiber. The long fiber of the asbestos also contributes to a stronger coating by binding the particles thereof together. A deadening composition compounded as described by me will yield about 75 to 80 gallons of the finished product.

I have found that the incorporation of large quantities of water in the preparation of a composition of this kind has certain drawbacks. For instance, if approximately 25% or more of water is added to the above described composition an emulsion would probably be formed, which would be undesirable, and the composition would be given a false body, drying would be slow and difficulties would be had in colder weather with freezing, and with deterioration. It would therefore be permissible to incorporate in my composition in the neighborhood of 10% or less of water to give a little more slip to the composition, although this is not ordinarily necessary as the asbestos fiber is actually a substitute for any water that might ordinarily be thought necessary to use in a composition of this character.

The apparatus most suitable for the application of my novel composition to the inside of automobile bodies comprises a tank containing the composition and supplied with air pressure of about 50 pounds to the square inch, there being an outlet at the bottom of the tank for conveying the composition through a flexible line to the spray gun. After the sections of the body are united and the bracing thereof is completed, the deadening composition is sprayed upon the inner side of the broad unsupported sections of the body metal known as the panels, such as the door or rear panels. In fact, any portion of the body metal which becomes vibratory during the operation of the car may be coated with my composition. The composition may be applied so as to constitute a layer from a half to one quarter of an inch thick or less. The entire inside of the panel may be coated completely or it may be coated say over the center three quarters or seven eighths thereof leaving a small margin. Various patterns, such as crosses, may be employed to advantage. The composition may be applied thicker at the center of the panel than at the edge thereof. When applied, my composition will dry "dust free" in about five minutes, that is it will skin over. When the volatile constituents have substantially evaporated the composition adheres tenaciously to the body shell, will not flow at higher nor become brittle at lower atmospheric temperatures. Any vibrations which would ordinarily be set up in the operation of the automobile will be quite effectively dampened or deadened so that objectionable rumble will not occur in the operation of the car. I have also found my composition useful in the prevention of rattles and squeaks in the car. By spraying the composition into the cracks and crevices between abutting or closely adjacent braces, joists, etc. used in constructing the body, any vibration therebetween may be minimized.

In the accompanying drawings, in which like reference characters refer to like parts, Fig. 1 is a perspective view of the rear portion of an automobile body incorporating my invention; Fig. 2 is an elevation of a door coated with my composition; Fig. 3 is a section taken along the line 3—3 of Fig. 2 and Fig. 4 is a diagrammatic illustration of the spray outfit that may be employed. In Figs. 1 and 3, the thickness of the body metal and of the coating of deadening composition is exaggerated for purposes of illustration.

The reference character 1 indicates the metal of the body which is reinforced by joists, braces or sills 2. Between the joists 2 lie the panels 3 the vibration of which are to be deadened. Upon the panels 3 is sprayed a coating of my composition 4. In Fig. 3 will be noted the manner in which the deadening composition may be tapered if desired so as to save material and still effectively deaden vibration. The spray gun outfit depicted in Fig. 4 may include a container 11 having a compressed air inlet 12 and a composition outlet 13 which is connected to the spray gun 14. An opening 15 is provided for introduction of the composition into the container 11. Valves of any suitable kind may be used where necessary, such as valve 16 for the air line and valve 17 for the composition line to control the flow therethrough. Assuming the valves to be properly set, air pressure applied to the container 11 will force the composition therefrom through outlet 13 to the spray gun 14 by which the composition can be sprayed upon the body metal as herein before described.

My deadening composition has at atmospheric temperatures, approximately the viscosity of heavy machine oil and may quite readily be sprayed cold. It may of course be applied with a brush although that would be tedious and expensive and a step backward rather than a step forward in the art. It may be applied to the bodies after they have passed through the paint drying ovens as heating is not necessary to drive off contained volatile constituents, nor is cooling necessary to cause the setting of my composition as the composition is applied at ordinary atmospheric temperatures. In addition to deadening vibration it will deaden the "bang" which usually accompanies the slamming of automobile doors. It will be apparent that the cost of application of my composition is very small compared to that of other expedients previously tried and that whereas my composition can be sprayed, it would be impossible to spray a mere mixture of bituminous materials, solvent and fiber. Such prior known mixtures have been known for decades but not found useful for the purpose to which my composition is adapted.

It will be obvious that my novel deadening composition may be utilized in a number of ways for the deadening of sound, that is, it may be used upon any sheet metal structure which is subject to vibration or sudden shock such as would produce a "bang" or rattle. For instance, I have found that my deadening composition may be used advantageously upon the under side of theater seats to deaden the sound ordinarily produced when they are folded. Metal partitions may be coated upon the side not exposed to view, to deaden sound when the partition is struck. The inside of filing cabinets may also be advantageously coated to deaden rattle and vibration therein.

Numerous other uses for my novel composition will occur to those skilled in the art and it is intended that those above referred to and those others which will reasonably occur to those skilled in the art shall be included in the claims to the composition appended hereto.

What I claim as my invention, and desire to be secured by Letters Patent of the United States, is:

1. A deadening composition comprising a multiple of approximately 140 pounds of fibers and about 60 pounds of a colloidal clay intimately incorporated into approximately a 48 gallon batch of a carbonaceous mixture which comprises as its principal constituents 2 parts of mineral pitch, 3 parts of a

vegetable pitch, 3½ parts of a solvent therefor and less than 10 per cent of water.

2. A deadening composition comprising a multiple of approximately 70 pounds of wood flour, 70 pounds of asbestos fibers and about 60 pounds of a colloidal clay intimately incorporated into approximately a 48 gallon batch of a carbonaceous mixture which comprises as its principal constituents about 2 parts of asphalt, 3 parts of cotton-seed pitch, 3½ parts of a solvent therefor and less than 10 per cent of water.

3. A deadening composition comprising a multiple of approximately 70 pounds of wood flour, 70 pounds of asbestos fibers and about 60 pounds of bentonite intimately incorporated into approximately a 48 gallon batch of a carbonaceous mixture consisting of about 10 parts Gilsonite asphalt, 12 parts petroleum asphalt, 33 parts cotton-seed pitch, 38 parts of naphtha, 4 parts ester gum, 2 parts lead oleate and less than 10 per cent of water.

4. A fluid, sprayable, deadening composition essentially consisting of approximately 2 to 3 parts of asbestos and one part bentonite clay intimately incorporated into approximately 6 parts of a solution composed of about 5 parts of a mixture of mineral and vegetable pitches in about 3 to 4 parts of a high volatile organic solvent, the solution containing less than 10% of water.

5. A fluid, sprayable, deadening composition essentially consisting of approximately 2 to 3 parts of asbestos and one part bentonite clay intimately incorporated into approximately 6 parts of a solution composed of about 5 parts of a mixture of pitches of different melting points in about 3 to 4 parts of a highly volatile organic solvent, the solution containing less than 10% of water.

Signed at St. Louis, State of Missouri this 14th day of May A. D. 1929.

GEORGE B. DUNFORD.

APPELLANT'S BRIEF.

IN THE

UNITED STATES COURT OF APPEALS

FOR THE DISTRICT OF COLUMBIA

No. 8389

UNITED STATES
COURT OF APPEALS FOR
DISTRICT OF COLUMB
FILED JAN 25 1943
Joseph W. Stewart
CLERK

ORVILLE V. McGREW, *Appellant,*

v.

CONWAY P. COE, COMMISSIONER OF PATENTS,
Appellee.

Appeal from the District Court of the United States for the District of Columbia.

CHARLES J. MERRIAM,
2800 Board of Trade Bldg.,
Chicago, Illinois,
Solicitor for Appellant.

NELSON J. JEWETT,
850 Munsey Bldg.,
Washington, D. C.,
Counsel.

THE TWENTIETH CENTURY PRESS, INC., CHICAGO

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IN THE

UNITED STATES COURT OF APPEALS

FOR THE DISTRICT OF COLUMBIA

No. 8389

ORVILLE V. McGREW, *Appellant,*

v.

CONWAY P. COE, COMMISSIONER OF PATENTS,
Appellee.

APPELLANT'S BRIEF.

I.

JURISDICTIONAL STATEMENT.

This Court has jurisdiction of the present appeal because it was duly taken from a final judgment of the District Court of the United States for the District of Columbia in a suit brought by Orville V. McGrew, appellant, under Section 4915 of the Revised Statutes (U. S. C. Title 35, Sec. 63) against appellee in his official capacity as the Commissioner of patents.

II.

STATEMENT OF THE CASE.

The judgment of the District Court dismissed plaintiff's complaint, seeking a patent under Section 4915 of the Revised Statutes.

The invention in suit is defined in claims 1-5, 9, 10, 12 and 13 of application Serial No. 264,492, filed March 27, 1939. That application grew out of an earlier application, Serial No. 115,254, filed December 10, 1936, and a division thereof, Serial No. 144,558, filed May 24, 1937. The history of the several applications is of no importance in the present case.

The substance of the invention resides in an insulating composition composed of cut-back asphalt and cork granules in such proportions that the product has the following characteristics:

> (a) It will flow by suction (but not by pressure) to a pump, pass under pump pressure to a tube, and be sprayable from a spray nozzle.
>
> (b) The product, when applied on a vertical or overhanging surface, will adhere in layers up to an inch in thickness.
>
> (c) The product, when dry, will have a remarkably high insulating value.

Claim 4 states these characteristics, except for the insulating quality. It is as follows:

> 4. The herein described composition, the main bulk of which is supplied of cork granules, the granules being held together by a cut back asphalt binder containing substantial proportions of Gilsonite, the binder being supplied in quantities sufficient to coat the granules and fill the pores to an extent permitting move-

> ment of the composition by suction, the binder being of a consistency to render the composition self-adherent when sprayed on vertical or overhanging surfaces in layers up to an inch thick.

Claim 13 is an extremely specific claim, setting forth the composition exactly and also describing the resulting "K" factor of insulating quality.

It is as follows:

> 13. The herein described composition comprising approximately 7.7 parts of cork particles having approximately 10 to 20 mesh size weighing approximately 3.75 lbs. per cubic foot; 1.6 parts of cork dust; 10.5 parts of asbestos fibre; 16.6 parts of intermediate melting point asphalt and 11.1 parts of Gilsonite; and having a "K" factor of approximately 0.39.

A cut-back asphalt is an asphaltic material normally solid which has been dissolved in a petroleum solvent, usually naphtha.[1] The material is, therefore, liquid or semi-solid, but, upon evaporation of the naphtha, becomes solid. The term "K factor" is a technical term indicating insulating value. It designates the heat conductivity in terms of BTUs per hour, per degree Fahrenheit, per square foot of area, per one inch thickness.

The problem which presented itself to applicant, in preparing the product which is the basis of this suit, was to find a protective coating which could be applied to the inside of freight cars or similar structures, which would protect the cars from heat loss, which would protect the inside of the cars from moisture including moisture of condensation, which could be applied cold in the field by a spray gun, and which would withstand the bouncing, pumping, humping and jostling to which railroad freight cars are subjected, as well as the extremes of temperature which they must endure, the moisture conditions created inside of them by evaporation from hot moist food products, and the various materials with which they come in contact.

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[1] Cox, Appendix p. 48, Record p. 58.

There were of course many asphalt mixtures on the market and these included, with the asphalt, cork and asbestos. It is the contention of the Patent Office, and the lower court agreed with the Patent Office, that the present invention is merely a mixture of these ingredients prepared within the skill of the art.

Applicant's product has gone into considerable usage and has met with great commercial success, particularly for use on railway cars. The McGrew product has been applied to more than 50,000 railway cars over a period of seven years.[2] It filled a long-felt want, since the railroads had obviously needed such a product for years and the building trades had likewise searched without success for such a composition.[3] There was a real need for the composition, which need has been met successfully by applicant's material. There is at the present time no other successful competing material.[4]

The references relied upon by the Patent Office are Luyties Patent 1,643,021[5] and the Dunford Patent 1,914,912.[6] The Luyties patent describes a pipe liner designed to be applied melted. The McGrew composition could not be applied as Luyties describes, and the Luyties product could not be applied as McGrew describes.[7] There are no proportions given in Luyties. The McGrew material does not become fluid on heating and would be unsatisfactory if it did.[8] The Luyties patent does not teach one how to make a product which can be sprayed cold, nor one which will adhere in thick layers when so sprayed.

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[2] McGrew, Appendix p. 54, Record p. 64.
[3] Johnston, Appendix p. 57, Record p. 68.
[4] Johnston, Appendix p. 61, Record p. 73.
[5] Appendix, p. 63.
[6] Appendix, p. 65.
[7] Cox, Appendix p. 44, Record pp. 52-53.
[8] Cox, Appendix p. 44, Record p. 53.

The Dunford patent teaches the manufacture of a complex asphaltic material which includes wood flour. The Dunford product, if prepared to be sprayable, will not adhere in thick layers to vertical walls.[9] If thickened so that it will adhere, it is not sprayable.[10] Dunford describes his patented material as capable of being brushed, or sprayed in the ordinary manner. McGrew's material cannot be brushed[11] or sprayed[12] in the ordinary manner. Dunford himself took a license for applying material to cars from McGrew. This license was under a patent for spraying the present composition by suction.[13] Obviously Dunford was unable to spray any composition including his own by ordinary pressure spray. The material Dunford did apply under the license was unsatisfactory.[14]

In order to manufacture a composition which would be suitable for freight cars or other similar purposes, applicant had to have a mixture which would fulfill the following requirements:

> (1) It must be possible to apply the mixture by spraying.
>
> (2) The mixture when sprayed must adhere firmly to any surface which it hits.
>
> (3) The composition must adhere as sprayed to vertical or overhanging walls in thicknesses of ¼ inch or more without slipping, sliding or crawling.
>
> (4) The composition must dry without becoming so porous as to permit water to pass through it.
>
> (5) The composition must be sufficiently porous when dry to provide high insulating value.
>
> (6) The composition must be able to dry quickly without skinning over.

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[9] Cox, Appendix p. 33, Record p. 39.
[10] Cox, Appendix p. 33, Record p. 38.
[11] Cox, Appendix p. 20, Record pp. 22-23.
[12] Cox, Appendix p. 22, Record p. 24.
[13] McGrew, Appendix pp. 54-55, Record pp. 64-65.
[14] Cox, Appendix pp. 51-52, Record p. 75.

(7) The composition must retain plasticity under extreme cold and not become too plastic under extreme heat.

(8) The material must not shrink greatly on drying.[15]

All of these characteristics are absolutely essential. Many of them seem to be mutually exclusive. For example, the product must be highly porous but not so porous as to be water-permeable.[16] Similarly, the product must be sprayable. This means it must be fluid, but the more fluid the material becomes, the more likely it is to slip and slide and to become porous on drying. The more fluid it is, the more likely it is to shrink on drying.[17] On the other hand, if it is stiff enough to adhere, it is more likely to skin over on drying and less likely to become porous enough to provide insulation.[18]

The McGrew product answers all of these requirements. Neither of the references does, nor is there any other product on the market which does.

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[15] Cox, Appendix pp. 28-31, Record pp. 32-36.
[16] Cox, Appendix p. 29, Record pp. 33-34.
[17] Cox, Appendix p. 31, Record p. 36.
[18] Cox, Appendix p. 29, Record p. 34.

III.

STATEMENT OF POINTS.

Appellant assigns the following errors in the record and proceedings in the above entitled cause: The District Court of the United States for the District of Columbia was in error as follows:

(1) In refusing to authorize and direct the Commissioner of Patents to issue a patent to plaintiff upon his application, Serial No. 264,492, filed March 27, 1939, entitled "Insulating and Sound Deadening Composition."

(2) In sustaining and adopting the decision of the Patent Office, holding that the said application did not contain patentable invention.

(3) In finding that the patent to Luyties 1,643,021 dated September 20, 1927, disclosed a composition consisting substantially of the same ingredients as the composition claimed in claims 1 to 5, inclusive, and 12 of the application here in issue, and that these claims recite nothing amounting to invention over this patent.

(4) In holding that the patent to Dunford 1,914,912, issued June 20, 1933, discloses a composition consisting substantially of the same ingredients recited in claims 1 to 5, inclusive, and 12, and that these claims recite nothing amounting to an invention over this patent.

(5) In holding that claims 2, 3, 4, 5 and 12 define the characteristics of the composition largely in terms of functional result, particularly since this objection was not raised by the Patent Office.

(6) In holding that the specific proportions recited in claims 9, 10 and 13 cover compositions differing only in

degree and not in kind from the compositions disclosed in Luyties and Dunford.

(7) In entering the judgment of September 4, 1942 dismissing the complaint with costs against plaintiff.

(8) In refusing to enter each and every one of plaintiff's findings of fact, as submitted, as follows:

> 1. The invention relates to an asphalt-cork composition which has both the ability to be sprayed at atmospheric temperatures, and which will adhere to vertical or overhanging walls in thick layers when so sprayed.
>
> 2. The invention has found great commercial success without advertising. It has been employed largely in lining the interior of the roofs of freight cars, where great toughness, adherence, and insulating value is required.
>
> 3. For years the railroad industry and the building trades searched without success for a material having the properties of McGrew's composition. There was a real need for the composition, which need has been met successfully by applicant's material. There is at the present time no other successful competing material.
>
> 4. The McGrew product has been applied to more than 50,000 railroad cars over a period of seven years.
>
> 5. The references do not show compositions capable both of being sprayed cold and being applied in thick layers.
>
> 6. The Luyties patent describes a pipe liner designed to be applied melted. The McGrew composition could not be applied as Luyties describes, and the Luyties product could not be applied as McGrew describes. There are no proportions given in Luyties. The McGrew material does not become fluid on heating, and would be unsatisfactory if it did.

7. The Luyties patent does not teach one how to make a product which can be sprayed cold, nor one which will adhere in thick layers when so sprayed.

8. The Dunford patent teaches the manufacture of a complex asphaltic material, which includes wood flour. The Dunford product, if prepared to be sprayable, will not adhere in thick layers to vertical walls. If thickened so that it will adhere, it is not sprayable. Dunford describes his patented material as capable of being brushed, or sprayed in the ordinary manner. McGrew's material cannot be brushed, or sprayed in the ordinary manner.

9. Wood flour and cork are not equivalent in this composition.

10. Dunford himself took a license for applying material to cars from McGrew. This license is under a patent for spraying the present composition by suction. Obviously, Dunford was unable to spray any suitable composition, including his own, by ordinary pressure spray. The material Dunford did apply was unsatisfactory even then.

11. Dunford does not teach one skilled in the art how to make McGrew's material.

IV.

SUMMARY OF ARGUMENT.

A.

The judgment of the District Court was based on the proposition that the proportions recited in the McGrew application are not critical, and hence disclose nothing novel over the references. The uncontradicted evidence showed that precise proportions are absolutely essential in order to produce a material having the necessary quality of sprayability, adherence in thick layers to vertical metal or wood surfaces, durability, and high insulating value.

B.

The use of cork by applicant is not a mere substitution of an equivalent for the wood flour used by Dunford. The cork does not absorb asphalt as does the wood flour; so the cork product retains its lightness and high insulating value. It is an unexpected and as yet unexplained difference between the materials.

C.

There is no basis in law or in fact for the Patent Office's position that mere routine skill would arrive at applicant's compound, starting only with the knowledge that asphalt and cork compositions were old.

D.

The testimony shows a long felt need, both in the railroad business and the construction field, for a material having the properties of the McGrew composition; but despite considerable research on the subject, no other satisfactory material has ever been discovered. The composition has met with great commercial success. These facts alone entitle McGrew to a patent. *Paramount* v. *American Tri Ergon Corp.,* 294 U. S. 464, 474. *Levin* v. *Coe,* . . . Fed. (2d) . . ., 55, U. S. P. Q., 224 (Court of Appeals of the District of Columbia, 1942).

E.

Where an invention fills a long felt need, it is immaterial that the advance might seem, to the ordinary mind, to be an obvious thing. *Carnegie* v. *Cambria,* 185 U. S. 403, 429.

F.

The defense of functionality must be ignored because it was not raised by the Examiner or the Board of Appeals, nor was it stated in the answer of the Commissioner. *Pierce* v. *Penberthy,* 38 Fed. Supp. 144. Even assuming that the defense was timely, the claims are not functional.

V.

ARGUMENT.

In the present case it has been somewhat difficult to avoid some argument in the statement of the case or to avoid some restatement of the case here. We have attempted to keep overlapping to a minimum.

The decision of the Patent Office and of the lower court was based largely on the theory that applicant had merely compounded another asphalt composition in a slightly different form from the references. In fact it amounted to a holding that no possible combination of these ingredients could be patentable in view of the state of the art.

We can find no basis for such a finding in the record. Applicant approached a problem which had been a crying need of the railroad business since its inception. One of the particular needs was for flour cars. As Mr. Cox pointed out on page 25 of the appendix,[1] flour is loaded from mills at a temperature of 80° to 100° with a fairly high moisture content, the doors of the car are shut, and, as a result, moisture condenses on the ceiling and doors, particularly in the winter, and this water drops back into the flour. The railroads had tried various methods to eliminate this but had not succeeded. Applicant's product, which is sprayed cold on the inside of the freight cars in layers ¼ of an inch in thickness, solves this problem, protects the cars themselves from corrosion, and lasts indefinitely. Mr. Cox showed pictures of material which had been in use five years.[2] In addition to being supplied to freight cars, the material is also placed on storage tanks and other containers. Exhibit 7b shows a tank which had been coated some four years before. The ¼ inch layer of applicant's product Dednox eliminated 60% to 65% of the heat loss.[2a]

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[1] Record, p. 29.

[2] Exhibit 7a.

Mr. McGrew pointed out[3] that the McGrew Paint & Asphalt Company is licensed to apply the material under the name "Dednox" to railway cars, and that Insul-Mastic Corporation of America is licensed to apply it for industrial and domestic work. He pointed out that the material is applied to refrigerator cars, Pullman cars, to streamlined trains, and to every type of railway rolling stock. Sales have steadily increased from 450 freight cars and 100 refrigerator cars in 1936 to 13,000 freight cars and 5,200 refrigerator cars in 1941. The process is also licensed in Canada.

Mr. Johnston, president of the Insul-Mastic Corporation, was formerly president of the Cemenstone Corporation, makers of precast concrete, and prior to that time was vice-president of the A. M. Byers Company, manufacturers of wrought iron pipe. He pointed out that asphalt was widely used as a protective coating. Mr. Johnston investigated the coating situation carefully before becoming connected with Insul-Mastic Corporation and he had had a wide experience therewith prior to that time.[4] He found that the new material had unique uses and properties, and specified as an example, a sale to the Koppers Company, itself a large maker of asphaltic materials, for coating a rectangular tank for which no previous suitable coating had been found.[5]

Mr. Johnston stated[6] that in all of his experience he had never found any material which could be sprayed onto vertical walls and retain its characteristics and thicknesses up to ¼ of an inch.

[2a] Appendix pp. 27-28, Record p. 32.
[3] Appendix pp. 53-55, Record pp. 62-65.
[4] Appendix pp. 55-57, Record pp. 66-68.
[5] Appendix p. 59, Record pp. 70-71.
[6] Appendix p. 61, Record p. 73.

The Court will find on page 16 and following of the appendix, a complete description of how applicant's material is made. Mr. Cox, chief chemist of McGrew Asphalt Company, demonstrated the entire manufacture of the material in Court.

In brief, the asphalt ingredient itself consists of a flux which is made of three different types of Midcontinent asphalt. This mixture is blown with air until it has a melting point of about 180°. After that gilsonite which has a very high melting point of about 275° F. is incorporated. The addition of the gilsonite raises the melting point of the mixture after which a little of the original flux is added to bring the melting point back to 200.

The product is then warmed to about 300° F. and a petroleum solvent added to make a cut-back which is liquid at room temperature having about the consistency of heavy molasses. This is called the base and is used as the starting material for preparing the finished product, called Dednox. The base is thinned with more solvent and then a large percentage of cork is added. This cork is about 10 to 20 mesh but includes an important small proportion of fine dust. The mixture with the cork in it, is still not satisfactory in the proportions shown and a solution of chromic acid is added in water which produces a tackiness or a gumminess which causes the material to adhere when sprayed.

Plaintiff's Exhibit Number 4 is a book of photographs showing in detail the spraying machine used for applying the material and demonstrates the manner in which the material builds up when applied to a vertical surface.

In connection with this application it is extremely interesting that applicant failed entirely to obtain a mixture which could be applied by ordinary spraying methods. He did discover that a mixture might be produced which could be applied by suction but could not be applied by pressure. That is, the material was so sticky and heavy that if ordinary spraying methods were employed in which the pressure is built up on the above material in a hopper, the material would not flow properly and would form channels which would permit the air to go through in slugs.[7] It is only when applicant devised a material which could not be handled in the ordinary manner and devised a suction method of handling it, that he was able to produce a product which would answer his needs. This limitation that the material is applicable by suction is in all the claims.

But applicant had not only the problem of applying his material in a satisfactory manner and having it adhere in thick layers after application. It was important that the material be light in weight and that it have a high insulating value. The use of cork was an obvious answer to both of these propositions but it was not an obvious thing to determine the proper proportions and conditions under which the cork could be employed.

As Mr. Cox pointed out on page 29 of the appendix:[8]

> "We have found that if too much cork is used the product is mealy and will not adhere, due to the lack of asphalt. If too little cork is used the material is heavy, does not have the insulating value, and it invariably falls. If the cork is not of the right mesh we find, again, that if it is too large it is mealy, will not adhere, will not bind together; if it is too fine a texture it does not have the insulating value. So there are a good many variables in there, and it is quite important that we get the right balance; otherwise the material will fail."

Mr. Cox went on to explain further the necessity of just enough porosity in the material.[9]

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[7] Cox, Appendix p. 22, Record p. 24.
[8] Record p. 33.
[9] Appendix p. 29, Record p. 34.

> "Well a porous substance is always a good insulator, provided the pores do not fill with moisture at a later date if moisture is present in the air. Now, the porosity also enables material to be lighter in weight, which is a distinct advantage I mentioned in eliminating sliding and falling. Also, the porosity enables the material to dry through, which is very important. If the material is dense it tends to skin over and not dry through; and in railroad practice, in which all the spraying is done outside in the summer months, if the material is not porous a pressure is built up from the solvents evaporating, which are apt to cause the material to fall, blow off, cause blisters, somewhat similar, your Honor, to paint blisters, if the material is too dense."

The reason why several types of asphalt are employed and particularly in combination with gilsonite was further explained by Mr. Cox.[10]

> "Q. Will you also explain the reason why it is that you use the several kinds of asphalt which you described earlier? A. Yes. The asphalt composition we feel is very important. Asphaltic products without gilsonite are apt to liver in cold weather.
>
> Q. What do you mean by 'livering'? A. Livering means that it takes on a false body. We are at room temperature. Let us suppose we have a material that is water-thin, and we take that same material outside to, say 32 degrees, and it would be like a gelatin. Well, it is obvious that in production jobs we cannot have a material that changes consistency that fast, because practically all our work is sprayed outside in the prevailing weather conditions. We have sprayed our material at temperatures as low as 15 degrees below zero and as high as 120 in the shade. So by using a blend of asphalts with gilsonite, such as we have incorporated, we have eliminated the livering that is common in ordinary asphalts of that high melting point. Now, it is possible to make asphaltic materials with-

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[10] Appendix pp. 29-30, Record pp. 34-35.

> out gilsonite that will not liver, but they are limited to the lower melting points and the high-penetration asphalts, and these become very soft in summer under the heat of the summer sun and therefore do not work as well in hot weather. That is why we have made our blend as it is."

Mr. Cox then demonstrated to the Court a number of samples of material in which the proportions had been varied to make what apparently would be satisfactory compositions, all of which failed for various reasons; some because they would not stick, some because they did not spray, some because they shrank too much.[11]

In discussing these, Mr. Cox also prepared samples according to the reference Dunford. The Dunford material if prepared without a solvent, is like a plastic roof cement without any cork. The material does not shrink greatly and does not slide but of course cannot be sprayed, would not be light and would not have any insulating value.[12]

If cut back with just enough solvent to enable it to be operated, however, the material would not adhere and shrinkage was very high.[13]

Mr. McGrew pointed out[14] that Dunford had recently taken a license under Mr. Grew's spraying patent for applying heavy materials by suction which showed that Mr. Dunford could not have had a material himself which could be satisfactorily applied by ordinary spray methods. The material which he did apply by Mr. McGrew's spray method proved unsatisfactory.[15] The Dunford patent does not use cork. The Patent Office contended the wood flour which Mr. Dunford used was the equivalent of cork. Mr. Cox stated[16] that wood flour was not the equivalent of cork and demonstrated to the court why this was so. The cork provides lightness without absorbing asphalt. If applicant's material is cut after drying, the cork particles which have been divided still show the natural cork color. Wood flour on the other hand absorbs the asphalt and the result is that wood flour produces a heavy material whereas the cork produces a light material of high insulating value.

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[11] Appendix pp. 30-32, Record pp. 35-38.

[12] Appendix p. 33, Record p. 38.

[13] Appendix p. 33, Record p. 39

[14] Appendix pp. 54-55, Record pp. 64-65.

[15] Appendix pp. 51-52, Record pp. 74-75.

The Luyties patent does not show any proportions at all. The material described is a pipe dipping composition intended to line the insides of pipes. As Mr. Cox pointed out on pages 44 and 45 of the appendix,[17] it is impossible to apply a material to railroad cars by melting, whereas it is impossible to melt McGrew's material and apply it hot. On the contrary, McGrew's material becomes heavier with prolonged heating.

APPLICATION OF REFERENCES.

It is obvious that the references cannot be applied directly to the claims. They do not show and cannot be claimed to show products which meet the terms of applicant's claims. The Dunford material and the Luyties material were not meant to be applied cold by spray processes and to adhere in thick layers when so applied.

The position of the Patent Office must, therefore, be limited to the contention that no invention could possibly be involved in preparing applicant's compound, over the *mere knowledge* that asphalt compounds including cork, were old.

There is no basis in law or in fact for such a position. There is no evidence in the record to the effect that rou-

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16. Appendix pp. 40-42, Record pp. 47-50.
17. Record pp. 52-54.

tine invention would have yielded such compounds. On the contrary, the evidence shows clearly that Mr. McGrew had to revolutionize application methods before he found a compound that could work at all. In spite of the obvious need for such a material, no one else has been able to produce such a product, even up to the present time.

Under the decision of this Court, as for example, in *Levin* v. *Coe*, ... Fed. (2d) ..., 55, U. S. P. Q., 224 (Court of Appeals of the District of Columbia, 1942), and of the Supreme Court, as for example, in *Paramount* v. *Tri-Ergon*, the existence of a want for a long time, particularly when coupled with commercial success when the want is filled, is proof of invention.

This is true even where the invention seems, to the ordinary mind, an obvious thing. *Carnegie* v. *Cambria*, 185 U. S. 403 at 429.

In the present case the compounding of a product having all of the eight qualities described heretofore in this brief, is not only unobvious, but truly remarkable. There was a want and applicant's product has filled it successfully.

FUNCTIONALITY.

This objection is purely a formal one. It was not raised by the Examiner or the Board of Appeals below and is not pleaded in the answer of the Commissioner. On the basis of the ruling in *Pierce* v. *Penberthy*, 38 Fed. Supp. 144 (D. C. Del.), opinion by Judge Nields, likewise a proceeding under Section 4915, the defense must be ignored because not heretofore raised.

This seems to us particularly true of the defense of functionality. Applicant is not permitted to amend his claims. Therefore, it comes too late for the Patent Office to object to the form of claims when their form has crystallized without objection and when applicant is not entitled to change the form.

Applicant has shown two compositions which fulfill the specifications of the broader claims. In view of the teaching, only a simple test is required to determine whether the composition is within the claims. Obviously applicant is entitled to complete protection on his invention and that includes everything which is the equivalent of what applicant has done. Applicant is the first to teach that an asphalt-cork composition can be made having the combination of characteristics set forth in the generic claims.

We, therefore, believe that these claims should be allowed, even if it is proper for the Patent Office to raise the objection at this stage.

Respectfully submitted,

Orville V. McGrew,
By Charles J. Merriam,
Solicitor for Appellant.

Nelson J. Jewett,
850 Munsey Bldg.,
Washington, D. C.

UNITED STATES
COURT OF APPEALS FOR
DISTRICT OF COLUMBI

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BRIEF FOR APPELLEE

In the United States Court of Appeals for the District of Columbia

APPEAL NO. 8389

ORVILLE V. McGREW, APPELLANT

v.

CONWAY P. COE, COMMISSIONER OF PATENTS, APPELLEE

APPEAL FROM THE JUDGMENT OF THE DISTRICT COURT OF THE UNITED STATES FOR THE DISTRICT OF COLUMBIA

BRIEF FOR THE COMMISSIONER OF PATENTS

W. W. COCHRAN,
Solicitor, United States Patent Office, Washington, D. C.,
Attorney for Appellee.

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In the United States Court of Appeals for the District of Columbia

APPEAL NO. 8389

Orville V. McGrew, appellant
v.
Conway P. Coe, Commissioner of Patents, appellee

APPEAL FROM THE JUDGMENT OF THE DISTRICT COURT OF THE UNITED STATES FOR THE DISTRICT OF COLUMBIA

BRIEF FOR THE COMMISSIONER OF PATENTS

INTRODUCTION

This is an appeal from the judgment of the United States District Court for the District of Columbia (14)[1], dismissing appellant's complaint brought under Section 4915 R. S. (U. S. C., title 35, sec. 63), to authorize the Commissioner of Patents to issue to appellant a patent containing claims 1 to 5, inclusive, 9, 10, 12, and 13 of his application, Serial No. 264,492.

APPELLANT'S APPLICATION

Appellant's application discloses a composition consisting of cork granules, finely divided cork, asphalt, Gilsonite, asbestos, and a solvent, such as naphtha. The composition is made of such consistency that it may be sprayed on surfaces to form a thick coating thereon. The coating serves to insulate the surface and deaden sound.

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[1] The numbers in parentheses refer to pages of appellant's appendix.

THE LUYTIES PATENT

The Luyties patent (64) discloses a composition which is used as a lining for pipes to prevent them from bursting upon freezing. The composition is described, on page 1 of the patent, beginning in line 83, as being composed of cork, of a fineness corresponding to that of ordinary granulated sugar, asphalt, Gilsonite, asbestos, and a petroleum solvent to render it viscous or fluid to the desired degree. Small amounts of other materials may be added. It is stated in the patent, on page 2, lines 7 to 12, that each particle of cork and asbestos is coated with the binder, that is, asphalt and Gilsonite. According to the disclosure made on page 2 of the patent, column 1, the pipe is coated by being dipped into the fluid composition to cause the desired thickness of the composition to adhere to the pipe. It seems clear from these statements that the composition is without voids and is sufficiently fluid to permit it to be pumped by suction, as recited in plaintiff's claim 9. This patent does not give the proportions of the various ingredients but it will be obvious that the ingredients themselves are the same and this was admitted by the plaintiff's witness Cox on cross-examination (49).

THE DUNFORD PATENT

The Dunford patent (67) discloses a sound deadening composition adapted to be sprayed on automobile bodies by means of a spray gun (page 2, line 70). The composition consists principally of asphalt, Gilsonite, naphtha, cottonseed pitch, wood flour, and asbestos. Proportions of these ingredients are set forth in the first column of page 2 of the patent, and also in the claims thereof. The proportions disclosed in the patent differ considerably from the proportions disclosed in appellant's application. It may be noted that the wood flour used in the Dunford composition is of a fineness corresponding to 20 or 25 mesh. This fineness is not greatly above the 10 to 20 mesh, or the 10 to 30 mesh, set forth in certain of appellant's claims as being the fineness of the granules he employs. Moreover, it would seem that while wood flour could not be presumed to have the same compressibility as cork granules, the difference in compressibility would be only one of degree and not of kind.

SUMMARY OF ARGUMENT

1. The references disclose the same ingredients which appellant uses, the only difference being in the specific proportions of these ingredients.
2. The specific proportioning of the ingredients is a matter of choice and experimental determination only, involving no invention.
3. Claims 2 to 5, inclusive, and 12 are indefinite in that they define the proportions in terms of function only.
4. The indefiniteness of claims 2 to 5, inclusive, and 12 was properly considered by the lower court, even though it was not specifically set out in the answer to the Complaint.

ARGUMENT

It will be clear that both of the prior patents disclose compositions for use on various objects to provide thick coatings thereon. It will also be clear that these patents specify the same materials as those employed by appellant. The only difference is in the proportions of these materials which are used in the composition. The proportions used by appellant are recited only in his claim 9, 10, and 13, and the proportions there recited are not the same. Claims 9 and 13 are inconsistent in their statements of the proportion of pulverized cork to granulated cork. Thus claim 9 recites 204 lbs. of granulated cork and 50 lbs. of pulverized cork. This is a ratio of 4 to 1 approximately. On the other hand claim 13 recites 7.7 parts of granulated cork and 1.6 parts of pulverized cork. This is a ratio of nearly 5 to 1. Claim 9 recites 1 part of Gilsonite to 3 parts of asphalt, while claim 13 recites 11.1 parts of Gilsonite to 16.6 parts of asphalt, which is equivalent to a ratio of 2 to 3. Since appellant has thus claimed compositions having considerably different proportions of the ingredients, it follows that neither of these different proportions is critical. It is obvious that by varying the proportions of the various ingredients compositions of somewhat different properties will be produced. This would seem to indicate that some experimentation is necessary in order to obtain a composition having the desired properties for certain uses. Since the prior patents show compositions made of the same ingredients, it would appear that those skilled in the art could, without invention and only by experiment, obtain a composition having the desired properties. It may be true that the compositions set forth in appellant's claims 9, 10, and 13 may be more suitable for this purpose than a composition made in the proportions set forth in the Dunford patent but it does not follow that invention was involved in ascertaining the proper proportions of the ingredients. The United States Court of Appeals for the District of Columbia in *Minnesota Mining and Manufacturing Company* v. *Coe,* 99 F. (2d) 986, said:

> Invention may appear when a result is produced which had never before been produced; when its need had been long realized, and "Thousands of dollars had been spent and countless experiments had been performed in fruitless endeavors to accomplish [it] * * *" But a showing of great industry in experimental research is not in itself sufficient to constitute invention, when the product thereof differs from those of the prior art only in degree and the result—no matter how useful it may be—is merely one step forward in a gradual process of experimentation.

And the same Court, in *Minnesota Mining and Manufacturing Company* v. *Coe,* 100 F. (2d) 429, said:

> Although the Klein and Brown process may have constituted an improvement, yet all improvement is not invention and entitled to protection as such. To constitute invention improvement must involve something more than what is obvious to persons skilled in the art to which it relates.

Similarly, the United States Court of Customs and Patent Appeals, in *In re Goessling,* 108 F. (2d) 266, said:

> The patent laws do not contemplate that every improvement, even though of great utility, should warrant the improver being given a monopoly upon the manufacture and sale of the same. One entitled to a patent must not only obtain novel and useful results, but his device must be the result of inventive genius.

Appellant would be entitled to a patent including claims 9, 10, and 13 only if the composition made of the ingredients and in the proportions recited in these claims is different in kind and not just in degree from the compositions disclosed in the Luyties and Dunford patents. This principle is well established by numerous court decisions dealing with the question of patentability of compositions made of materials in certain proportions. Thus, in *Brady Brass Co.* v. *Ajax Metal Co.,* 160 Fed. 84, the Circuit Court of Appeals for the Third Circuit said:

> * * * There is no evidence to show that there is an absolute and sudden change at this precise so-called "critical point" of 7 percent of tin and more than 20 percent of lead. On the contrary, the weight of the testimony is all to the effect that the change in conditions is gradual in approaching this point. * * * There is no "critical point," on one side of which there is an absolutely bad product and on the other side an absolutely good product.

In *David Belais, Inc.* v. *Goldsmith Bros. Smelting & Refining Co.,* 10 F. (2d) 673, the Circuit Court of Appeals for the Second Circuit, said:

> * * * An alloy never mixed before may effect so startingly new a result as to arrive at even pioneer invention (*American Stainless, etc., Co.* v. *Ludlum, etc., Co.* [C. C. A.] 290 F. 103): but ordinarily the rule is that it is the invention of what is new, and not the attainment of comparative superiority or greater excellence in that which was already known, that amounts to patentable invention (*Smith* v. *Nichols,* 21 Wall. 112, 22 L. Ed. 566).
>
> Applying this to alloys, a "mere difference in the proportions of the constituents of an alloy, however useful the result may be, is not patentable, where the result was reached gradually by experimentation, and the final product differs from those of the prior art only in degree." *Brady, etc., Co.* v. *Ajax Co.,* 160 F. 84, 87, C. C. A. 240.

The United States Court of Customs and Patent Appeals, in *In re Lilienfeld,* 67 F. (2d) 920, 21 C. C. P. A. 792 said:

> It is well established that, while a change in the proportions of a combination shown to be old, such as is here involved, may be inventive, such changes must be critical as compared with the proportions used in prior processes, producing a difference in kind rather than degree.

The following additional decisions are to the same general effect:

In re Richter, 53 F. (2d) 525, 19 C. C. P. A. 756.

In re Arness, 95 F. (2d) 344, 25 C. C. P. A. 997.

Dean Murphy et al v. *Coe,* 99 F. (2d) 944.

Claim 1 appears to present no distinction whatever over the references. The binder materials of these patents will obviously "substantially fill the voids" and the composition could be "withdrawn by suction" if desired. It should be noted that the claim does not specify the degree of suction nor the place from which the material is to be drawn. The functional limitation of claim 1, therefore, is clearly too vague to define anything patentable. Moreover, as above pointed out, the particular proportioning of the ingredients, and the resultant consistency of the product, are matters of choice and degree only.

The remaining claims, 2 to 5, inclusive, and 12 do not recite the proportions of the ingredients but in effect state that the proportions are such as to produce the desired result recited in these claims. Claims of this nature have been condemned by the courts as functional and therefore unpatentable for the reason that they do not comply with the requirement of Section 4888 R. S. (U. S. C., title 35, sec. 33) that an applicant shall particularly point out and distinctly claim the part, improvement and composition which he claims as his invention.

In the case of *Koebel et al.* v. *Coe,* 105 F. (2d) 784, the United States Court of Appeals for the District of Columbia had before it the following claim:

> 7. As a new article of manufacture, a setting for diamonds consisting of a base metal alloy the principal ingredients of which are molybdenum, copper and cobalt so proportioned as to be capable of being sintered at a temperature below that of the critical point at which the desirable qualities of the diamond are adversely affected, said alloy when so sintered having the property of wetting the diamonds coupled with a lack of avidity for the carbon thereof and, when thereafter cooled, of closely adhering to it.

In holding such a claim improper the Court said:

> Claim 7 defines nothing. It uses the words—
>
> which describe the function * * * to the exclusion of any structural definition, and thus falls within the condemnation of the doctrine that a patentee may not broaden his product claims by describing the product in terms of function. *General Electric Company* v. *Wabash Appliance Corporation,* 304 U. S. 364, 371, 58 S. Ct. 899, 82 L. Ed. 1402.

The language used by the Court in its decision was taken from the decision of the Supreme Court in *General Electric Co.* v. *Wabash Appliance Corporation, et al.,* 304 U. S. 364, in which the Supreme Court held a claim invalid on its face as being not sufficiently definite to satisfy the requirements of Section 4888 R. S. and said:

> * * * But the vice of a functional claim exists not only when a claim is "wholly" functional, if that is ever true, but also when the inventor is painstaking when he recites what has

> already been seen, and then uses conveniently functional language at the exact point of novelty.

It should also be noted that even if claims 2 to 5, inclusive, and 12, could be considered as defining some definite proportioning of ingredients they would still be lacking in invention for the reasons given above in connection with claims 9, 10, and 13.

Appellant states in his brief (page 19) that the question of functionality of the claims is "purely a formal one" and that it cannot be raised because it was not set forth in the answer to the Complaint. Neither of these propositions is considered sound. A functional claim is indefinite and does not point out the alleged invention in the manner contemplated by Section 4888 R. S. This clearly goes to the merits and is not a mere formal defect.

As to the propriety of considering the indefiniteness or functionality of claims 2 to 5, inclusive, and 12, the decision of this Court in *American Steel and Wire Co. of N. J.* v. *Coe,* 70 App. D. C. 138, 105 F. (2d) 17 is thought to be controlling. In that case the Court held that a patent which was not set up in the answer might properly be considered at the trial. In so holding, the Court said:

> The proceeding under section 4915 R. S. is a proceeding de novo in equity and, while the inquiry therein must be confined to the invention claimed in the Patent Office, nevertheless, it is not a technical appeal from the Patent Office, like that authorized in section 4911, confined to the case as made in the record of that Office, but is prepared and heard upon all competent evidence adduced and upon the whole merits.

This holding would apply with even greater force to a ground such as indefiniteness, which is inherent in the claims themselves and does not involve extrinsic evidence such as an additional citation of prior art.

CONCLUSION

It is submitted that none of the appealed claims is patentable over the disclosures of the Dunford and Luyties patents and that claims 2 to 5, inclusive, and 12 are unpatentable for the additional reason that they are functional.

Respectfully submitted.

W. W. Cochran,
Solicitor, United States Patent Office,
Washington, D. C.,
Attorney for Appellee.

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Original

APPELLANT'S REPLY BRIEF.

IN THE

UNITED STATES COURT OF APPEALS

FOR THE DISTRICT OF COLUMBIA

No. 8389

ORVILLE V. McGREW, *Appellant,*

v.

CONWAY P. COE, COMMISSIONER OF PATENTS,
Appellee.

Appeal from the District Court of the United States for the District of Columbia.

CHARLES J. MERRIAM,
2800 Board of Trade Bldg.,
Chicago, Illinois,
Solicitor for Appellant.

NELSON J. JEWETT,
850 Munsey Bldg.,
Washington, D. C.,
Counsel.

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W. W. Cochran
COUNSEL FOR APPELLEE

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IN THE

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Appellee.

APPELLANT'S REPLY BRIEF.

I.

The Commissioner's Brief attempts to say that because two compositions work, that neither can be critical. This is like saying that because both carbon and tungsten filaments will produce light, neither was patentable over the prior art, even though the prior art failed to produce any light at all.

Mr. McGrew's compositions are the only ones which can be sprayed and at the same time will adhere in thick layers to vertical surfaces. This is a difference in *kind* within every case cited by the Commissioner.

We have proved that the prior art will not work under these conditions. In many years no one has succeeded in developing a composition which would. As this Court said in *Levin* v. *Coe,* 132 F. 2d 589, 596 (55 U. S. P. Q. 224 at 231):

> "In *Carbide and Carbon Chemicals Corporation* v. *Coe,* 69 App. D. C. 372, 102 F. 2d 236 (40 U. S. P. Q. 141) (1938), and again in *Thornton* v. *Coe,* 69 App. D. C. 383, 102 F. 2d 247 (40 U. S. P. Q. 85) (1938), we recognized the principle that satisfaction by a method or device of an old and recognized want is highly persuasive of invention. The basis of that doctrine is that otherwise the mere skill of the art would normally have been called into action by the known want. The doctrine is authenticated by leading cases too numerous to mention. We cited them in the two cases just referred to.
>
> It is also settled in the law of patents that the fact that all of the elements entering into a combination are old does not necessarily negative the existence of invention. *Diamond Rubber Co.* v. *Consolidated Rubber Tire Co.,* 220 U. S. 428 (1911); *Iron Fireman Mfg. Co.* v. *Industrial Engineering Corp.,* 89 F. 2d 904 (33 U. S. P. Q. 277) (C. C. A. 7th, 1937). Such a combination may be patentable invention if it produces a new result, or an old result in a new or more efficient way. *Independent Oil Well Cementing Co.* v. *Halliburton,* 54 F. 2d 900 (12 U. S. P. Q. 175) (C. C. A. 10th, 1932, certiorari denied, 286 U. S. 544 (1932); *N. O. Nelson Mfg. Co.* v. *F. E. Myers & Bro. Co.,* 25 F. 2d 659 (C. C. A. 6th, 1928), certiorari denied, 287 U. S. 617 (1932); see Walker on Patents (Deller's ed. 1937, 147-149. The fact that the combination later appears to be a simple one does not necessarily negative the presence of a high degree of inventive genius. *Loom Company* v. *Higgins,* 105 U. S. 580 (1881); *Diamond Rubber Co.*

> v. *Consolidated Rubber Tire Co., supra.* We recognized these principles in *Electrons, Inc.* v. *Coe,* 69 App. D. C. 181 99 F. 2d 414 (38 U. S. P. Q. 370) (1938)."

The present case is governed by these principles.

II.

In answer to the defense of functionality, claims 1-5, inclusive, describe an insulating and sound deadening composition, composed of specified ingredients, which has the *physical characteristics* of being sprayable by suction at normal atmospheric temperatures, and of adhering in thick layers to vertical or overhanging surfaces. Claim 12 shows such a composition which, when dry, has a "K" factor of not over 0.42—again a definite physical characteristic. So far from rendering the claims objectionably vague, these limitations serve to point out with considerable specificity the nature of the composition which appellant asserts he has discovered. "A limited use of terms of effect or result, which accurately define the essential qualities of a product to one skilled in the art, may in some instances be permissible and even desirable, * * *" (*General Electric Co.* v. *Wabash Appliances Co.,* 304 U. S. 364, 371). The so-called "functional" language of the claims at issue does precisely that, and hence meets the requirement of the statute.

We believe that the defense of functionality cannot properly be raised here. The case of *American Steel & Wire Co.* v. *Coe,* 105 Fed. 2d 17 which permits the introduction of new patents as references is not believed to apply.

A question as to the form of claim is something which should be considered at a time when the form is fluid. If a formal objection had been raised in the Patent Office, the form might have been changed. On the other hand, a patent reference meets the merits of the situation and would be good at any time.

In the present case the claims alleged to be functional can be construed in light of the specification and, when so construed, they are properly defined in terms of physical characteristics.

Respectfully submitted,

Orville V. McGrew,

By Charles J. Merriam,
Solicitor for Appellant.

Nelson J. Jewett,
850 Munsey Bldg.,
Washington, D. C.